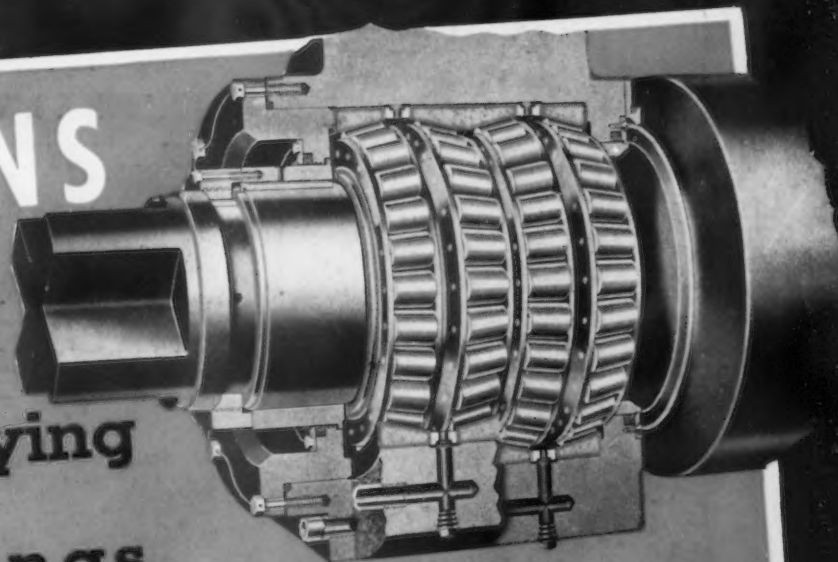


THE IRON AGE

COMPARISONS

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To Make When Buying
Roll Neck Bearings



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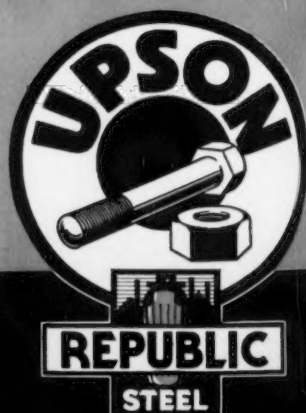


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FRITZ J. FRANK, President

J. H. VAN DEVENTER
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T. H. GERKEN
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R. E. MILLER
Machinery Editor

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JUNE 11, 1936

ESTABLISHED 1855

Vol. 136, No. 24

More About Mechanization

THE advocates of the philosophy of scarcity starting from the false premise that high prices produce wealth inevitably arrive at a common point. Traveling down their road of reasoning they come to the place where further improvements in mechanization are taboo.

In their thinking on this subject they are considering the supposed plight of the man who produces, not the man who consumes. It would be difficult indeed to show how the consumer is harmed by lowered costs which enlarge his power of possession.

The solicitude for the wage earner expressed by anti-mechanizationists lies in their belief that lowered costs mean less employment and lowered wages, hourly or weekly.

Those of us who believe that all increases in real wages and employment come eventually from improvements in efficiency take an exactly opposite viewpoint.

The proof of the pudding is in the eating. Theory and reasoning on economic subjects are not as convincing as performance, therefore consider this:

The maximum wages and greatest employment in American industry today are in those lines which have been efficiently mechanized and where restrictions on output do not apply. The automobile industry is a shining example; so is steel.

The lowest annual earnings by labor and the greatest unemployment lies in those industries which are least mechanized or where labor policies produce the same scarcity through artificial restrictions. The building trades furnish a graphic case in point.

The same thing applies to nations as to trades. Those which make use of mechanization have higher standards of living than those which do not. Not many American workmen would care to migrate to China to compete with coolie labor.

Machines are makers of wages and wealth.

John Van Dine



How We Control the Assembly of



THE Heald Machine Co. makes several different types of machines and naturally tools of this type, with many automatic features, comprise a great many parts. Some parts are interchangeable among two or more types or sizes and others are suitable for only one. That it takes careful organization and control to assemble, or build, a machine and

get it out on time goes without saying and elaborate means have had to be developed to this end. However, these can be outlined so as to give an idea how we manage this end of production and possibly give some helpful suggestions to others who have more or less complicated assemblies to deal with, whether in machine tool building or in some entirely different line. Many of the principles

VARIETY in machines constituting a manufacturing line introduces a complicated problem of control of parts for assembly. This is particularly true in the machine tool building plant, where various sizes of machines are built of the same type and



THE store room for finished parts. Upon receipt of the proper credentials various parts are placed on skid platforms and delivered to the sub-assembly department with instructions for further procedure.

▲ ▲ ▲



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THE machine tool assembly line does not utilize a conveyor, but it moves, nevertheless as assembly progresses. The use of skid trucks and skid platforms provides the mobility.

o o o

poly of Machine Tools

o o o

By W. L. BRODUER

Assistant Superintendent
Heald Machine Co.

o o o

where part interchangeability between unlike sizes is not always attainable. The Heald Machine Co., has developed a simple yet effective system to control such situations and the experience of that company is set forth in this article.

involved are not necessarily dependent on the product being a machine tool.

In the first place the production department is supplied by the engineering department with a *main schedule* for each type of machine tool. This includes a number of sub-schedules covering various units which form a part of the product, such as the base, electrical control boxes, cylinder and

reverse valves for the hydraulic transmission, the wheel head, and so forth. Each unit has a number and each part in the unit also has a number. Thus the main schedule has a complete list of every item that goes to make up a given product, and these items are grouped so that they show what part of the machine they go into.

One of the important duties of the production department is to see



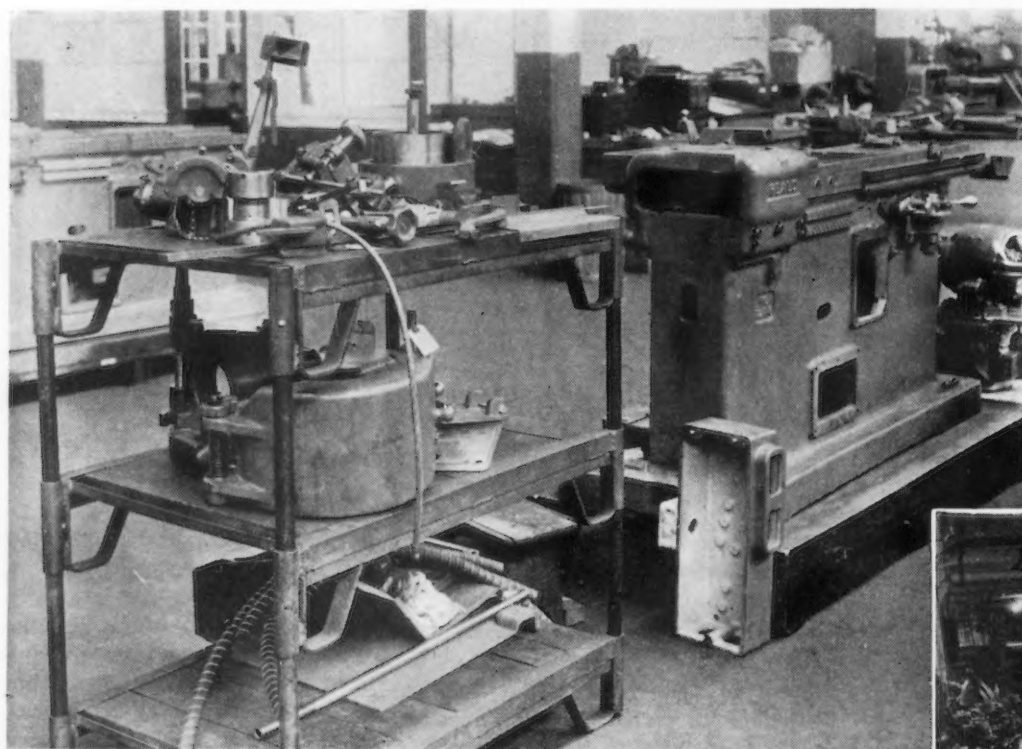
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PURCHASED parts, as distinguished from manufactured parts, are kept in the "raw stores" department. No material from either raw or finished stores is given out without the presentation of an "issue" ticket.

to it that a supply of parts and sub-assembled units is on hand for the filling of orders. To this end it maintains a perpetual inventory and the main schedules are posted with the stock on hand. If parts are needed an order is sent to the

skid platforms and sends them to the sub-assembly department, with the unit traveler, which gives full directions for the assembly. Finished stores mark the issues that the parts have been delivered and return them to the production de-

the particular requirements of the customer, are also given. Additional parts to go with the machine but not assembled on it are specified as well. These include such items as wrenches, blueprints, lubricants, grease guns, etc.



GENERAL assembly is facilitated by having the required unit assemblies and individual parts brought to the machine base by means of skid benches and lift trucks.

shop in the form of a "parts traveler." This is merely a blueprint of the part which gives the operations, material and routing. When the part is finished it is sent with the traveler to finished stores. Then the traveler is returned to the production department, thus serving as notice that the work has been done, and that the material is now in stock.

The sub-assembly of units is also made on order from the production department when its records show that they are needed. The procedure is as follows: The production department places a blueprint of the unit, blueprinted sheets listing the parts of which the unit is made and the "issues," or order tickets, authorizing finished stores to give them out in an envelope called the unit traveler. This envelope is sent to finished stores. The latter gathers together all the parts and places them on

department. When the units have been assembled they are turned into finished stores with the unit traveler. The latter is returned to the production department by finished stores, thus completing the transaction.

Purchased parts, such as nuts, bolts, springs, etc., are kept in "raw stores." No material from either store room is ever given out for any purpose without an issue being exchanged for it.

Now let us consider what happens from the standpoint of assembling a machine tool. When a machine has been sold the engineering department sends to the production department the unit traveler sheets covering all the units going into the machine in question, and parts which are not a part of a unit, attachments, such as guards and so forth. The wheel-heads, workheads, drive equipment, fixtures, etc., which are needed for



These sheets are all placed in an envelope by the production department. The latter also makes out the issues, a separate one for every item on the sheets, and places them in the same envelope. This traveler is sent to the assembly department. The foreman of this department then turns the issues into finished stores, or raw stores, as the case may be. The latter gather together the sub-assembled units and parts and place them on double-deck or triple-deck racks, with skid bases, which are moved to the assembly floor by means of lift trucks. Actually they are delivered to the machine base which has mean-

while been brought to the end of the assembly line for scraping. This base has the same serial number painted on it as is on the traveler envelope, and on the issues. If an order comprises more than one machine there is a separate envelope for each one. This envelope is tied to the base as soon as it comes on the floor and stays there until the completed machine is ready to ship. As the materials are delivered from the store rooms they are checked on the traveler sheets so that there can be no conflict between records. On the back of each envelope is given the time allowed for scraping and the time for line assembly. These are subject to change as will be noted later. It should be stated that the

remain stationary in its original position in the line, for as assembly work progresses it is moved in the direction of the run-off. There are several reasons for moving the machines in this way.

In the first place the production department holds meetings twice a week (Mondays and Thursdays) when it puts dates on the "building list," which is the equivalent of a machine assembling schedule. Dates are fixed for starting the assembly of new orders, for tests, for fixture tests and for shipment. If circumstances make it necessary these dates may be changed. For instance, a standard machine which is being made for stock may be held back to give preference to some other machine which calls for

automatically shows how much it should be pushed. Work is always concentrated on the head of the line. Sectionalizing the lines in this way also keeps the men from jumping around so much.

The machines are always moved by means of lift trucks. However where a "battery" of several similar machines is being built they are not moved progressively in this way. This is hardly needed as on a large order of this kind there is no risk of its being neglected. Also the large and very heavy machines are built in a section by themselves from which they are not moved progressively.

This arrangement has been developed by experience and has been found to be practical and efficient. As twenty-five different types of machines are made here and as all of them are elaborate, it is very necessary to have the organization and instructions full and complete.

UNIT assemblies are made in a department contiguous to the assembly lines. Here the various self contained mechanical or hydraulic units are prepared for the final assembly to the machine base.



bases are on skid platforms so that they may readily be moved.

The assembly floor, store rooms, and the run-off space are conveniently located with respect to each other and ample means are provided in the way of overhead traveling cranes for moving heavy parts, or units. As a matter of fact the heavy units, such as heads and motors, are usually put in place with the help of these cranes.

In this plant the term "assembly line" does not, of course, mean a moving conveyor. It only means a row of machines which are being built. However, a machine does not

early delivery. Of course there may be any number of reasons for changing dates.

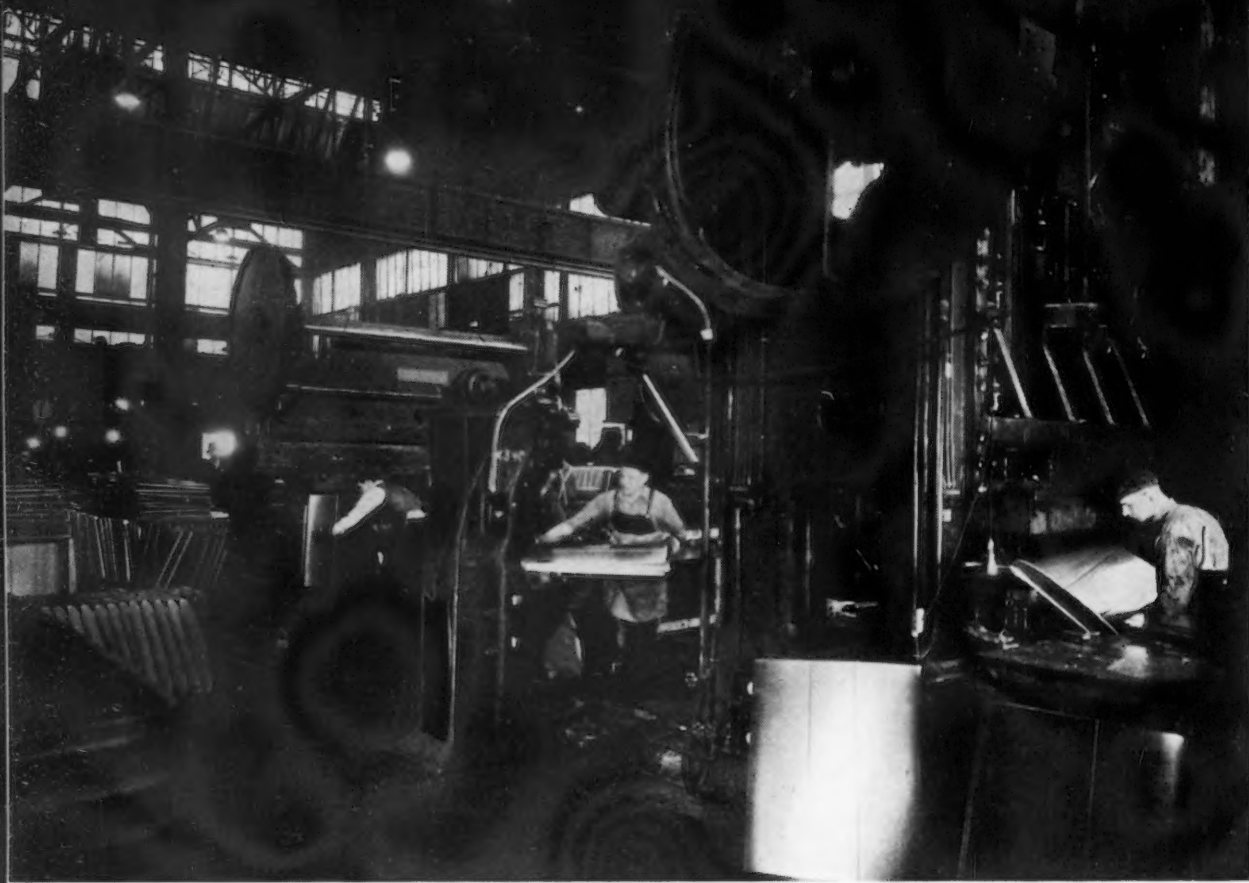
Every Wednesday and Saturday the machines which are being assembled are rearranged in the lines so that those which are to be finished first are placed at the head of the line, and those with later dates in other positions. That is, each assembly line is divided into sections and each section is numbered. A machine is placed in a section according to when it should be shipped and the length of time needed for building it, so that the position of a machine in the line

Greenfield Company Opens Detroit Plant

THE plant and facilities of the J. M. Carpenter Tap & Die Co., 2102 West Fort Street, Detroit, were recently acquired by the Greenfield Tap & Die Corp., Greenfield, Mass., for operation as a branch concern. The Greenfield company, which is one of the world's largest makers of screw cutting tools, felt the need of having a plant at the center of operations of the motor industry to enable it to keep pace with the constantly increasing demands of that business.

The new plant will be managed by Alfred LaPierre, former superintendent of the gage department at Greenfield. Other officers are as follows: Versil Annis, office and merchandise manager; Glenn Stimson, in charge of engineering; Roy Peterson, metallurgist; Al Kiehne, chief inspector; and John Penny, district sales manager.

The plant will be completely modernized and equipped to furnish special taps on a delivery schedule of one to two days after receipt of orders.



PRODUCTION line for forming door panels for Crosley refrigerator cabinets in the pressed steel plant of the Truscon Steel Co. Press and other equipment is conveniently arranged for consecutive operations. The door is drawn on the large double crank press shown at the right.



A CONTRACT for parts for electrical refrigerator cabinets placed with the pressed steel plant of the Truscon Steel Co., in Cleveland a few months ago by the Crosley Radio Corporation was of sufficient size to warrant considerable expenditure for new equipment and the creation of a production department to be used exclusively for the manufacture of parts for Crosley refrigerator cabinets. New equipment of the very latest type was installed including 27 Toledo and Consolidated presses and Cincinnati brakes, and a number of new polishing lathes, portable sanders and other tools which were supplemented by 11 presses and various other equipment previously used in other parts of the pressed steel plant.

This pressed steel unit for mass production of refrigerator cabinet parts is laid out across one end of the company's large plant and occupies a floor space of approximately 20,000 sq. ft.

Material is kept moving through progressive operations from the

time it reaches the press department until it is fabricated into finished parts, carefully inspected and delivered to cars at the shipping dock by a continuous mechanical conveyor. Stocking of parts on the floor between press operations is entirely eliminated, han-

INGENIOUS arrangement of stamping and forming operations characterizes the production lines established by Truscon Steel Co., Cleveland, for the manufacture, on contract, of Crosley refrigerator cabinets.

Large double crank drawing presses head each of the four production lines and are set in permanent foundations. The smaller presses which follow in production sequence are arranged to be moveable as to position to suit conditions.

dling labor is reduced to a minimum, floor space is conserved and other economies are effected that tend to curtail production costs.

After the last press operation the operator places the piece on a long bench equipped with slides upon which it moves in a straight line course through the various metal finishing operations.

The lay-out provides straight-line production from the time the sheet is given the first operation until the finished part is hung on the conveyor to go to the shipping dock.

In the 20,000 sq. ft. of floor space sets of parts for 2500 refrigerator cabinets are completed in an eight-hour day with the exception that the line making the side panels operates two shifts because there are two of these panels for each refrigerator necessitating the making of twice as many panels as other parts for each refrigerator unit.

The parts, seven in number, include in addition to the side panels, the door, lower front panel, top and two interior parts, which are

Mass Production of Parts for Crosley Refrigerator Cabinets

By FRED L. PRENTISS

Cleveland Editor, The Iron Age

the top and bottom plates. This requires an output of 17,500 finished stampings per day.

Assembly at a Distance

The parts are shipped to the Crosley plant in Cincinnati where the cabinets are assembled. Manufacture of parts for refrigerator cabinets in one plant and assembly in another is a rather new departure in the refrigerator industry, but a practice that is quite commonly followed in the automotive

industry in the manufacture of parts for bodies in one plant and assembling them at a far distant point. However, the economies to be effected from this practice are readily recognized when it is considered that the parts are manufactured in a large plant whose equipment is especially suitable and whose entire efforts and facilities are devoted to the manufacture and development of products of this class.

The Crosley production unit in

this plant is arranged with four production lines 160 ft. long extending the distance across the plant, each for a separate part and each having its own metal finishing line which is a straight line continuation of the line of fabricating equipment.

At the end of the finishing line the parts are hung on an overhead conveyor which carries them through a spray booth where they are sprayed with a coat of light oil to protect the surface during

THE metal finishing end of the door panel line along which the doors pass after completion of the various forming operations.





CABINET tops are drawn in the large single crank press shown in the foreground, which is at the head of the line. Small press equipment is conveniently grouped nearby for progressive operations. The presses that appear in the background at the right are at the head of the other three production lines.

the time they are en route to the assembly point. Continuing their movement on the conveyor the parts pass out to the shipping platform where they are removed from the conveyor and placed in cars on the adjoining shipping track. The conveyor is 750 ft. long and extends approximately 350 ft. along the shipping platform before turning back into the fabricating building, permitting the loading of as many as seven cars spotted along the shipping platform.

Press Production Lines

At the head of each production line is a large drawing press which performs the major drawing operation. The other equipment for subsequent progressive operations is closely grouped at the side of and beyond this press, the machines being close enough together to permit pieces to be passed by the press operator from one machine to the next without being piled on the floor. These drawing presses, which might be termed the key machines in the four production lines are two large double crank straight side presses equipped with pneumatic cushion beds used for drawing the side panels and doors, one single crank straight side press

equipped with pneumatic cushion bed for drawing the front lower panel and one large single crank straight side press equipped with a hydro-pneumatic cushion bed for drawing the cabinet top.

The four larger presses are set in permanent foundations. The smaller presses, however, do not have permanent foundations so that their positions may be changed if desired.

The speeds of the lines are reg-

ulated by the drawing presses which make 12 to 14 strokes per min. A great deal of study was given to the type of equipment for the various operations, the set-up of the machines and the proper positioning of presses in order to provide a lay-out that would assure high-speed and low-cost production.

The stock, all No. 20 gage cold rolled sheets, is passed through a roller leveller located immediately adjacent to the department and de-



tops are the large k press e fore- ch is at the line. equip- veniently arby for opera- presses r in the d at the the head er three lines.

ANOTHER view of the top line showing the grouping of smaller presses for progressive operations, these being so arranged that the distance that work has to be handled from one press to the next is reduced to a minimum.



ANOTHER view of the door panel line, some of the panels being stacked in the foreground.

the machine places it on the finishing bench.

Operations on Doors and Panels

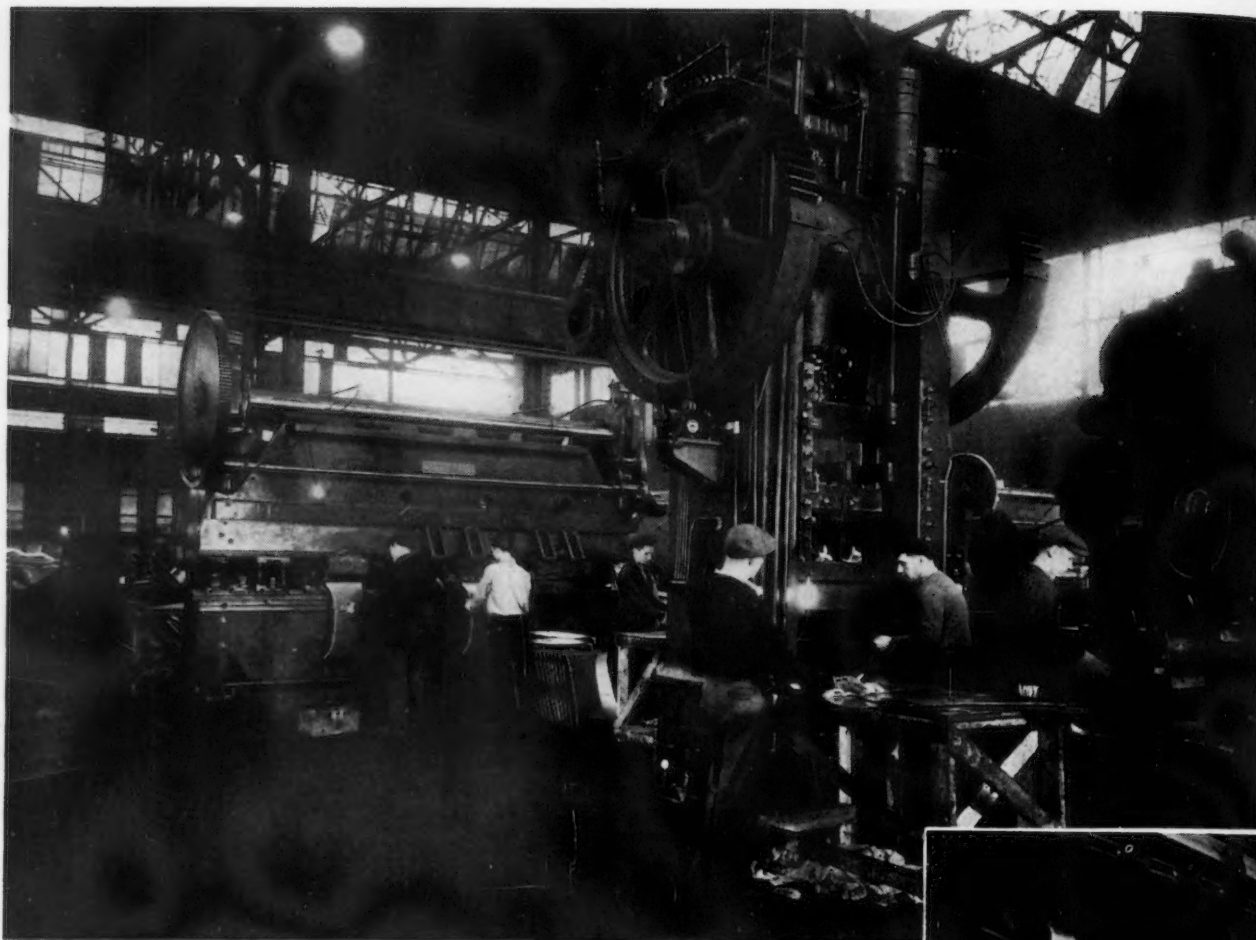
The first operations in fabricating the door are notching one side of the blank and trimming off the four corners on a small press. The door is then drawn on a large double crank press after which the four corners are trimmed to the proper height for flanging. The next operations are trimming and forming flanges on the four sides which is done on a brake at one stroke of the machine. The four corners are then flanged on a small press and two perforating operations follow on two punch presses. This completes the press operations and the door is placed on the metal finishing bench.

The first operation performed on the lower panel is the notching of the bottom and trimming the upper corners which is done in three strokes in a small rapid punch press. This panel is then drawn in a large single crank press. The panel then has the corners trimmed and notched to proper height for flanging on two small presses and then goes to a brake which is set up with a series of tools for trimming the top and sides to the

livered to the production lines in lifts by an overhead crane.

The first operation in the side panel line is notching the bottom of a blank sheet on a small press after which the first operation of forming the offset at the bottom of the legs is made in another small press. The piece is then passed to the large press for drawing the panel which requires a draw of about 4-in. depth. Progressive operations follow including trimming the flash, trimming corners to proper

height for return flanging, trimming and perforating two sides and top on a brake, forming the leg flanges and forming the return flanges on side and top sections of the panel on another brake on which there are three progressive flanging operations. Three pieces are set in the brake at one time and with each stroke of the machine the equivalent of a complete panel is flanged. This completes operations on the panel and the last operator on taking the panel from



LINE for the progressive fabrication of the lower front member or cross panel. This panel is drawn on the large single crank press shown in the foreground.

proper height for flanging, notching the lower corners and flanging the two sides. After these operations the top flange and two corners are formed on small presses and the panel is placed on the metal finish bench.

The sheet that is formed into the top is blanked, a notch is cut near the center and the four corners are trimmed. The blank is then broken down to approximately a right angle in a fixture and placed in the die in a large single crank drawing press and drawn to a 45 deg. angle and to a depth of about 4-in. This is a one-operation draw, which because of the shape of the finished top is rather difficult to form as the piece must be drawn without breaking or tearing the stock or pulling the stock out at the apex of the angular bend. After drawing, the rear corners are trimmed on two small presses, the bottom corners are formed on two other small presses, after which the piece goes to a large trimming

press for trimming the two sides and the front and back, these being four progressive operations with four pieces in the press at one time, or the equivalent of one top completely trimmed in each stroke of the press.

Flanging and Notching

Then on a similar press the flanges are formed on the cabinet top, these also being four progressive operations, or the equivalent of a top completely flanged at each stroke of the press. Operations that follow are, making angular notches in the two lower front corners, forming these corners and perforating key slots, these being done progressively in three punch presses. The part then moves to the metal finishing line.

The top plate that is located in the cabinet above the food compartment and the bottom plate that goes at the bottom of the cabinet require only two operations each to



complete, one for trimming, perforating and notching and the second for forming. This work is done on presses located at the side of the four production lines. As these are interior parts and require no metal finishing they are taken direct from the machines to the cars for shipping.

Each metal finishing line is a long bench on which the various

finishing operations are performed. The top of these benches consist of two longitudinal structural members and where necessary is covered with a smooth, hard, compressed fabric material to protect the parts from scratching or marking. The metal finishing operations are also carried on progressively, as each finisher performs his portion of the work the part moves along the bench to the next finisher who performs a subsequent finishing operation.

The stampings on reaching the

o o o

THE conveyor line on which the cabinet parts are suspended after finishing. This conveyor carries the parts through a spray booth for a protective coating of oil and through the side wall of the building onto the shipping dock from which they are carried directly into box cars.



finishing benches are thoroughly cleaned, the oil and drawing compound being removed and are inspected for dings, die marks and scratches. These imperfections are removed by metal finishing, consisting of dinging, if necessary, buffing and sanding. Highly polished dies are used to assure stampings that are smooth and free as possible from scratches.

The buffing is done on double end polishing lathes with rag wheels impregnated with a very fine emery and the sanding is performed with portable disc wheel sanders. High frequency sanders are used to assure high production and uniform speed under load. A frequency changer has been installed in this department to change the a. c. current to the current required for the high frequency motors.

Slushing and Shipping

The parts after metal finishing operations are performed are inspected and hung on the conveyor which carries them through the spray booth for the protecting coat of oil and to the shipping dock.

The conveyor on which the parts flow in a steady stream to the cars at the shipping platform has spe-

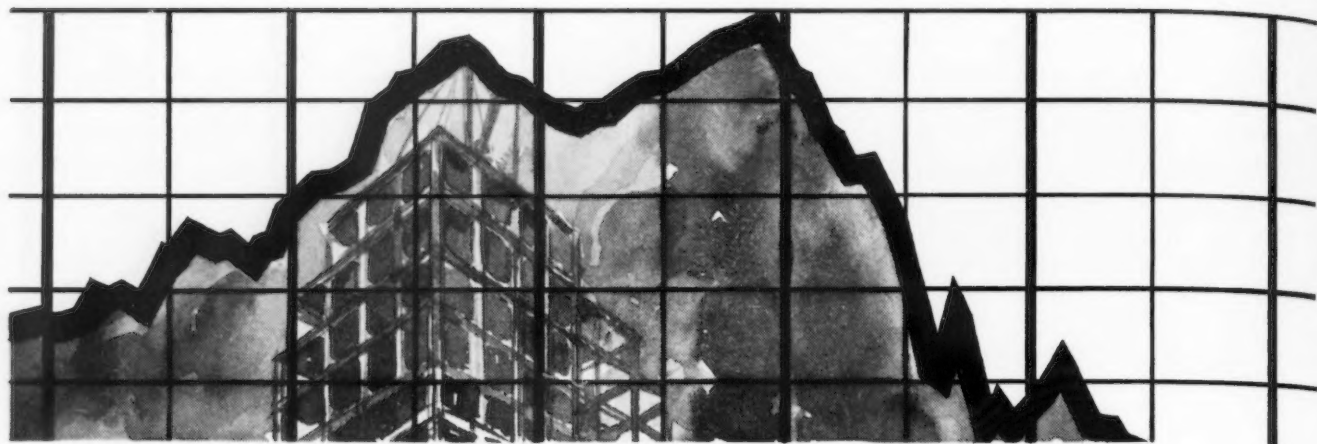
cially designed hangers, placed on 32 in. centers, upon each of which two parts are suspended. This conveyor, built by the Jervis B. Webb Co., of Detroit, has a variable speed up to 30 ft. per min.

Considerable care is exercised in the loading of the refrigerator cabinet parts in cars so that they will not be damaged in transit. Due to the expense involved crating is impractical. The panels are stacked in the cars face to face with corrugated board between the faces and the stacks are held rigidly in place by cleating and blocking to prevent shifting. The tops are all wrapped in paper before stacking. The parts are all tightly packed and almost every inch of floor space in the car is utilized.

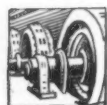
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▲ ▲ ▲ **M**ETAL finishing line for the cabinet top.





Profits of Machinery Builders



SOMETIMES news gets strangely distorted. And sometimes this can operate to the serious disadvantage of certain business interests. Here is an item that misrepresents the situation in the machinery building industry.

Late in March one of America's leading newspapers, over the first column on the first page, carried the headline—"Biggest Business Recovery Since '21 Is Now in Evidence; Heavy Industries Are in Van." In the text it stated—"The heavy industries have revived . . . the largest improvement has been in the equipment-making or so-called 'capital goods' industries. Among these are the makers of

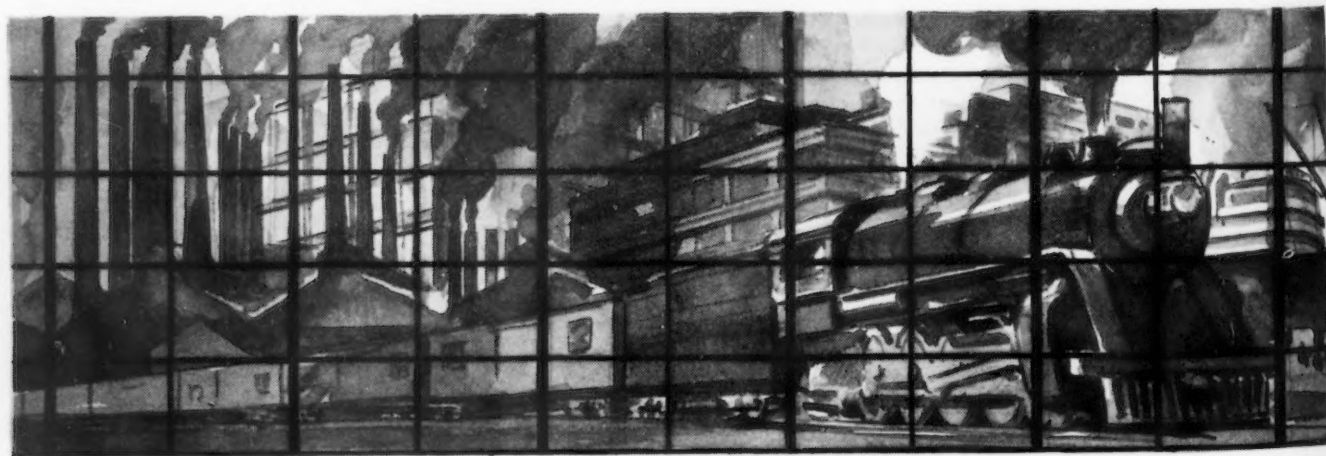
HERE is a common-sense article, based upon facts and dealing with the so called "boom" in the heavy industries

steel, electrical equipment, machine tools and the building industry." What are the facts?

Like many other commentators on the business situation, the author of the above quotation understands clearly that the continuing unemployment of some ten or

twelve million wage-earners has resulted from the stagnation of the industries mentioned. The problem of attaining recovery is largely the problem of reviving activity in these lines. Some months ago the Durable Goods Committee reported to President Roosevelt that this had not then occurred. The reporter seems anxious to catch the signal that demonstrates that happy days are here again. We can test the progress of recovery by measuring the increase in the activities of these capital goods industries.

The American people are further deeply interested in the producers of machinery because, in spite of all that has been said





Since 1928

By W. H. RASTALL

*Formerly Chief, Industrial Machinery
Division, Department of Commerce*

about technologic unemployment, it is the inventiveness of these machinery builders that has endowed our nation with its mass production and its low-cost production, in spite of high wage rates, and so has given us a very high standard of living. The above reporter seems awake to the fact that, not only are we deeply interested in the abundant life with abundant work, but are even more interested in having machines that give us the abundant life with as little work as possible. We want more and better inventions. Hurrah for the machine!

Unfortunately, as written, the above quotation, like similar comment from others, leads to confused

thinking because the inclusion of "makers of steel, electrical equipment," etc., draws in too wide a group of products. Our test of progress will be more precise if we exclude from our definition of "Capital Goods" pots, pans and tin

cans, cash registers, typewriters; plows, mowers and combines; household sewing machines, vacuum cleaners, fans and refrigerator; pianos and billard tables; automobiles, tractors and locomotives. We prefer here to consider,



not "Durable Goods" but only factory, mining and construction machinery—capital goods used for production. Because the methods of sale and purchase and the circumstances of use of consumers durable goods are so different from those applying to industrial machinery the facts regarding this latter group are of much more immediate significance and in this area we have had a unique experience of stress, courage and resourcefulness.

Going Down!

Between 1929 and 1933 employment in all American manufacturing industry declined 31.3 per cent. Many industries fared much better than this average. Makers of steel barrels during these years increased the number of their employees 58.9 per cent; makers of malt increased employment 43.7 per cent. Beer had arrived! Many food and clothing producing industries reported increases or declines that were very slight indeed. Those were privileged industries. As for the under-privileged—the machine tool group reported a decline of 73.2 per cent; engine builders a decline of 63.6 per cent; pumps a decline of 52.4 per cent. This shows a spread from plus 43.7 per cent to minus 73.2 per cent! What unbalance!

Not the Whole Picture

But these measures of unemployment are most inadequate because management exhausted every opportunity to keep their organizations intact and did show consideration for their men. Such work as could be found was spread as widely as possible. Men were occupied with plant rehabilitation, with research and with the development of new designs—even with painting up or boondoggling. By contrast to these unemployment figures the index of machine tool orders dropped from its peak of 186.3 in February, 1929, to a low of 7.4 in March, 1933, a decline of 95.7 per cent. The industrial pumps peak was in April, 1929, at 151.9, and the low was in January, 1933, at 19.3, a decline of 87.2 per cent. Woodworking machinery had its peak in January, 1929, at 125.1, and its low in March, 1933, at 3.2, a decline of 97.4 per cent. When was collapse more complete?

We do not have complete statistics describing the situation in the industrial machinery group as

a whole. The picture must be filled in from fragments such as the above.

Similarly, residential construction, mentioned in the above quotation, had a parallel catastrophic collapse. From its peak of 142 in February 19, 1928, it fell to 8.88 in January, 1933 (Federal Reserve Board Adjusted Index), a decline of 93.7 per cent. Only those in positions of responsibility in those industries fully appreciate the sober seriousness of such statistics; worse than drought or grasshoppers and with no way to plow under the excess capacity.

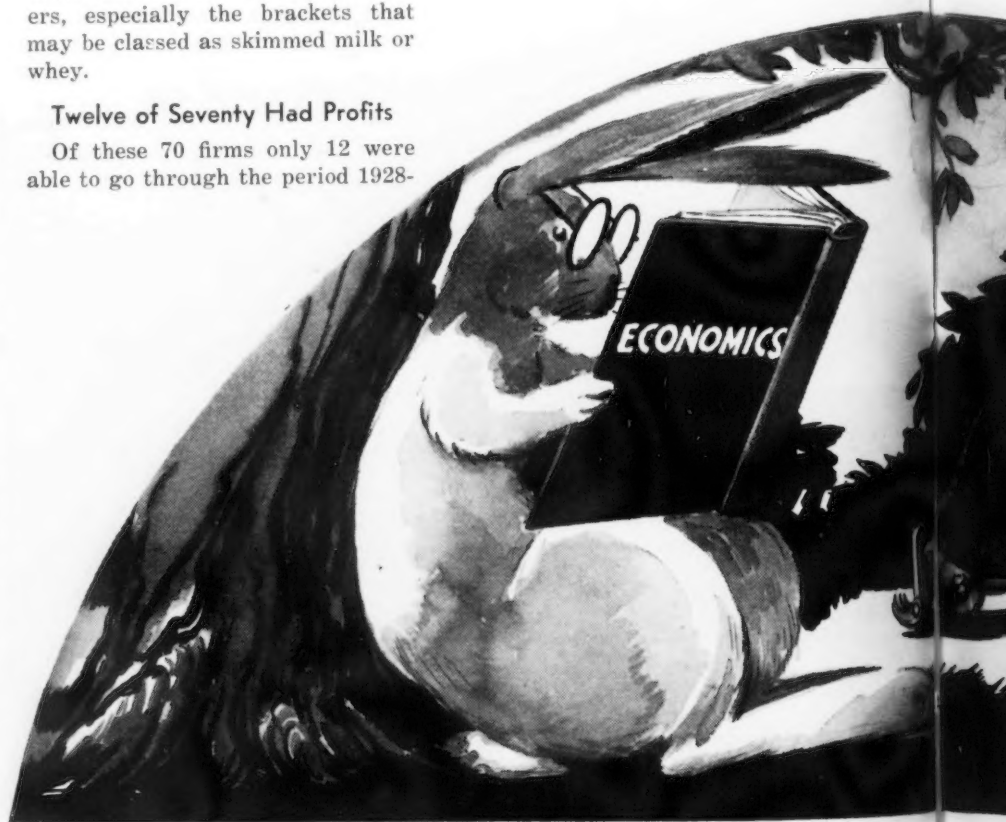
The above newspaper article was developed from the annual reports of various corporations. Such data are fragmentary, as commonly these statements are made public only by those concerns whose securities are listed on one of the recognized stock exchanges. This, for the industrial machinery group works out to about 70 firms out of several thousand. These few firms include the best names in the industry and can be found on the market pages of your daily paper. In considering the following comment regarding what has happened and what is happening to the cream of this group that produces the basic wealth of American industry also read between the lines to note what happened to the other thousands of these producers, especially the brackets that may be classed as skimmed milk or whey.

Twelve of Seventy Had Profits

Of these 70 firms only 12 were able to go through the period 1928-

1935, inclusive, without a deficit in any year. Six of these enjoy patent monopolies that enable them to do business on a royalty basis, with the result that their profit was not from building machinery, but rather from the making of cigars or glassware or shoes or what have you. Further "inspired bookkeeping" may also explain some of these favorable reports. There is at least one instance where the redesign of the product secured the orders that made the profits—a conspicuous example of excellent management. Another of these firms produces equipment for the steel industry which has an equipment policy much superior to the absence of policy followed by the machinery using industries generally. This steel industry policy is—do not expand during a boom, but rehabilitate during a depression. As a result, producers of steel mill equipment have been relatively comfortable during these difficult years. This leaves a very few firms that succeeded in deriving profit from the making of machinery between 1928 and 1935.

Subtracting deficits from profits, 19 of these 70 best names have gone through this entire period at a loss—not one cent of profit for



eight years, of which two were very active and six very, very dull—vast capital and much superb talent working with no return. Probably an even larger number of firms should be included in this group of losers, for there have been reorganizations and compositions and other adjustments that have not been advertised.

If, instead of including the boom years of 1928 and 1929 we consider only the period since Jan. 1, 1930, we find 35 of these 70 leading firms have operated six years at a loss, and six years is a very long time to be short of funds. Here again the number would be substantially increased if these statements were subjected to critical analysis. Words fail us when we think of the whey.

It is true that 1932 was the poorest year; there has been some subsequent improvement, but even in 1935 there were at least 12 of these 70 firms still in the red and, typically, in those instances where profits were reported, they were but a very small fraction of those accumulated in 1929. Even at this late date some of the most important firms have not published their statements for 1935. Some of these firms of lesser importance, al-

though still "best names," probably will not be able to issue statements because of receiverships, etc.

The Building Boom!

Lately other items have been appearing in the press that may possibly leave a false impression. Several times statements have been published indicating that residential building has expanded—is, say, double last year. It is true the recent high was in November, also in December, 1935, with the Federal Reserve Board Index (adjusted) at 26, as compared with the low of 8.88 in January, 1933, an increase of over 200 per cent. That is made to look like news. But these items have not mentioned that in 1928 the average was 126, so operations are still less than 21 per cent of that prosperous year. Such sordid facts are not news. But the publication of such items can easily lead the public to expect too much of the machinery and construction industries in the way of employment, in profits and public relations generally.

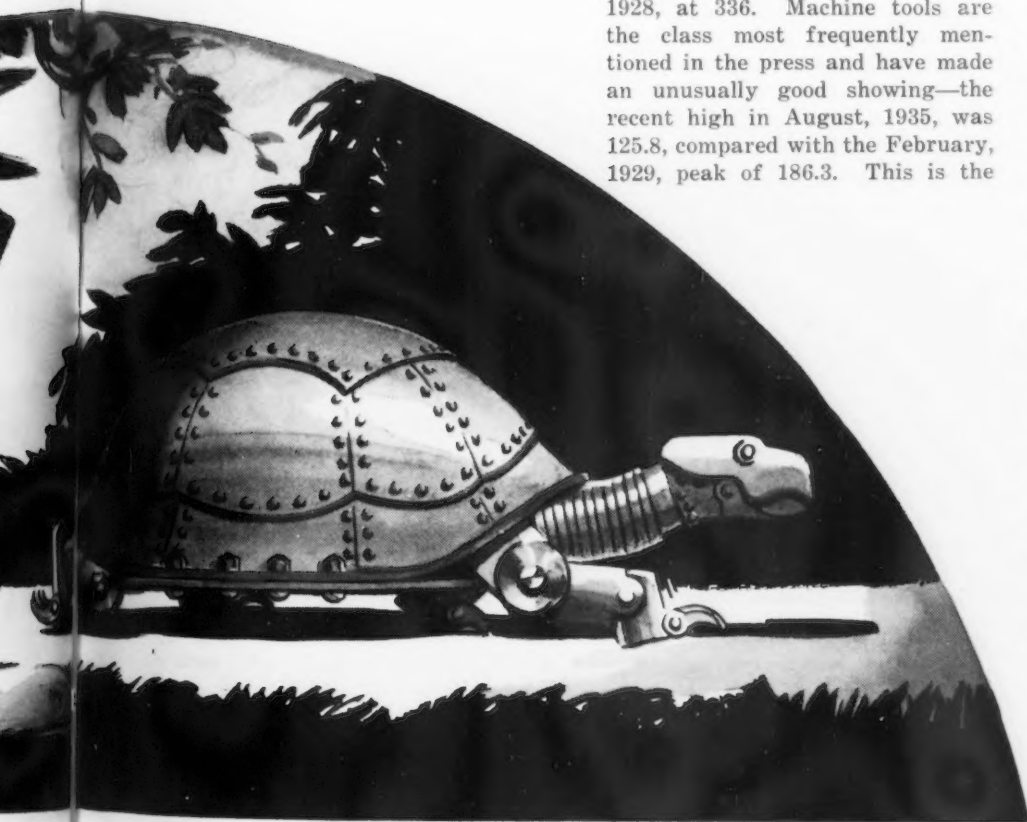
Similarly, the recent high in woodworking machinery was in December, 1935, at 23.5, compared with the January, 1929, peak of 125.1; industrial pumps in March, 1935, at 62.5, contrasted to the April, 1929, peak of 151.9; foundry equipment in October, 1935, at 140, compared with the peak in May, 1928, at 336. Machine tools are the class most frequently mentioned in the press and have made an unusually good showing—the recent high in August, 1935, was 125.8, compared with the February, 1929, peak of 186.3. This is the

degree to which the heavy industries are in the van of recovery. Remember here the position of the automotive, the beverage, the rayon and similar industries, and also the position of the consumers' goods industries generally.

In the above a poor statistical method has been employed deliberately. Comparisons have been made with the historical peak. Ordinarily that would scarcely be excusable. But these other commentators have made their comparisons with the historical lows. We merely seek a balance. Further, much argument would result if agreement was sought for some other base, such as 1926 or 1922-23-24, or other. Our object has been merely to test the quoted statement, "The heavy industries have revived." Instead, it is clear that while the situation is not as bad as it was, it is still far from right and this is not the time for Pollyanna statements at the expense of the capital goods industries.

Deferred Demands

There is a constructive side to this discussion. Depending upon the classifications used, this country produced about three or six billion dollars worth of machinery in 1929. In the subsequent years America has accumulated untold billions of deferred maintenance, deferred equipment, deferred progress. An enormous potential demand for industrial machinery exists and will crystallize into orders if we can but overcome the forces that have throttled business in the equipment and construction fields since 1929. This is not the place to attempt to state the cause or causes of the depression, but perhaps it can be agreed that it is of the nature of a monetary-credit phenomenon. At least industrial machinery purchases have been financed heretofore either by "new capital issues" or "profits plowed back." Since 1930 capital flotations have been at a very low level. Excepting brewery, distillery and gold mine projects and refunding operations, few issues have been floated, while reserves have been held tenaciously to cover deficits and business uncertainty and have not been plowed into plant expansion or rehabilitation. Of course there are industries, like automobiles and steel, or individual plants where this is not



true, but in a broad way the rule applies. If all this be conceded we can then agree that because of monetary-credit ineptitude we have reduced the producers of industrial machinery to the extremely low state described above, with all that this implies in cluttering our factories with obsolete equipment and denying our people the abundant life.

Economic Knowledge Lags

Our knowledge of economics has not progressed as rapidly as our technical knowledge. We have not yet learned how to adjust our monetary and credit systems and the distribution of the national income to our rapidly improving mechanism for production. Instead of an adequate, definite and constructive equipment policy for industry, we have confusion, drifting and obstruction. For example, note the inconsistencies in their effect on the industrial machinery producers of the proposed taxation of undistributed surplus; of the depreciation policies used by the Income Tax Unit; of the rulings of W.P.A. and P.W.A.; of the attitude of the Government toward the public utilities; of the various policies employed by the Interstate Commerce Commission. What will be the effect on the demand for labor-saving machinery when payrolls are taxed 9 per cent under the Social Security Act? May we call these the unconsidered by-products of Government action? Employment will return to the capital goods industries when new capital issues are sold to finance new plants, when management can see its way to plow profits back into improved machinery and when mortgages are negotiated to cover new residential and other construction.

Export Conditions

Too often this depression is thought of and spoken of as an American depression; instead it is worldwide and the forces at work abroad are startlingly like those felt at home. Compared with the pre-depression peak the decline in machinery exports, as expressed in monthly returns, has been much the same as the decline in domestic orders.

	Domestic	Export
Machine Tools	95.7%	93.0%
Woodworking Machinery	97.4%	95.4%
Industrial Pumps	87.2%	93.7%
Foundry Equipment	97.0%	98.2%
Air Conditioning Equipment	80.0%	97.2%

Recently, however, the export trade shows signs of marked improvement. Here machine tools are most conspicuous, for the recent peak is little below the 1931 peak.

June, 1931	\$3,288,302
November, 1935	2,875,361
December, 1935	2,673,481
January, 1936	3,146,588
February, 1936	2,751,825

Exports of industrial machinery at the peak in 1929 approximated a million dollars per working day—a huge business of the greatest social significance, precious to both buyer and seller. The experience has been:

Peak—March, 1929	\$25,645,339
Low—May, 1933	3,400,060
Decline—86.7%	
Recent High—November, 1935	\$12,222,239

These export markets again deserve careful attention.

By creating false impressions,

Polyanna press statements can easily create a difficult environment for the splendid men who have managed these industrial machinery producing shops. Perhaps the above description of their experience since 1930 and the progress they are making will correct such aberrations. The turn has come to the extent described. The skimmed milk bracket begins to see the way out if improvement continues. The pumping machinery, air conditioning equipment and certain other classes have good prospects. Also the export situation improves. With certain defects removed from the monetary-credit mechanism we can be assured that these important machinery builders will again be able to do their part. In the meantime they should be treated sympathetically. They have experienced the extreme of depression. They are far from the van of recovery.



RISING out of the Arizona desert this monument perpetuates the name of the man who drove the only camel caravan ever to trek this land. In Greek, the man's name was Phillip Tedro; in Arabic, Hadji Ali. But to the American soldier he was just plain "Hi Jolly." There was magic in the way Hi Jolly handled his majestic charges. And Hi Jolly, had he been alive at the time, would have seen magic in the "pen" which, with a sizzling hiss and an eerie bluishwhite light, wrote his epitaph with molten steel. The "pen" used to letter the steel tablet was the electric arc.

Machine Tool Selling Should Coincide With High Plane of Equipment Accuracies

By L. M. Waite

THE machine tool industry, it is openly admitted, needs to raise the standards of its selling methods to the plane of its equipment performances. Such purpose merits constructive thought within its own industry and cooperation from other industries which buy machine tools. Reliable sources of corrective information should be sought and considered by top executives.

With this thought in mind views are herein presented by direct sales representatives who develop inquiries, do selling and supervise sales work, and who arrange and are responsible for buyer-shop demonstrations in specified territories. These men have served the industry for long periods, are shop trained and are highly regarded among those whom they contact. We have frequently expressed their views for, obviously, they are qualified to speak.

A group discussion was recently held with respect to time-study departments in shops which employ large numbers of machine tools. It is not to be understood that the discussion was critical of these departments as such; it was not. It was, however, critical of high cost sales friction resulting from buyer technique involving delayed announcement of speeds at which new equipments will be operated after installation and demonstration in buyer plants, particularly in so-called line production. The point was stressed that present installation procedure does not protect the continuing interest which a maker has in his equipment after installation.

Machine Speeds Guaranteed

Machines, under present conditions, are sold largely on maker-suggested, competitive, and guaranteed speeds of production,

which speeds are frequently in excess of those finally set up by time study departments. The system has been fostered by sellers, each overly anxious to out-rate his competitor in sales proposals submitted.

Under such a system of selling, which is primarily one of estimated production under ideal conditions, guaranteed speed figures given in competitive bids become quite general knowledge among competitors involved.

After machines are installed, demonstrated, and put to work at buyers' time study speeds, guaranteed speeds become the object of word of mouth advertising, often exaggerated, to other prospective buyers.

Veracity of Both Hard-Loser and Successful Bidder is Challenged

If and when guaranteed speeds happen to be in excess of time study speeds, which are later nominated as operating speeds for normal production, prospects are often taken to buyers' plants, there to witness with their own eyes and record on their own stop-watches the claimed fact that a successful bidder machine has fallen down on guaranteed speeds. The visit is generally a hasty one with little opportunity for development of facts.

The hurling of this competitive challenge is quickly disclosed and the representative of the successful bidder, with blood in his eye, takes up the burden of disproving. Again the prospect is taken to the buyer's plant, there

to have it confirmed, through shop personnel and possibly by demonstration, that the machine was demonstrated at guaranteed speeds, but that for shop production reasons, demonstrated speed was reduced on orders from the time study department, a fact quite naturally not disclosed at the time of the first visit under "all's fair" rules of such competitive methods. A successful bidder, under this sales policy, is compelled to accept any and all challenges from unsuccessful competition obsessed with hard-loser peculiarities. Most decidedly, it is held, the plane of sales effort is not lifted by this somewhat regular routine, and, moreover, it is contended that cooperation of the buyer is necessary to any headway in correction of the evil.

Buyers Ready to Cooperate

It was pointed in the discussion that many buyers are ready to cooperate, particularly those who have been protecting themselves by refusing operating departments admission to prospective buyers. This admission refusal has serious drawbacks because prospects may have made long trips or taken valuable time to be convinced that a competitive machine is not up to snuff or that a competitor guarantees speeds to get orders. Contacts with higher-ups are resorted to in order to gain admission and they are generally effective. In this manner, under much present sales procedure, the buyer shop personnel becomes a court of last resort in both substantiating and disproving rival claims as to stated machine speed failures. This is complained of as a serious annoyance and reduces machine tool selling to a matter of mere veracity. It proves nothing other than the system is

far below the dignity of the products distributed.

Remedy Suggested

A conclusion reached by sales people who have faced these conditions many times is that buyer time study speeds, determined and specified prior to order placing, should supersede maker-estimated speeds as the basis of orders and buyer shop demonstrations. It is held that maker guaranteed speeds, if demanded in excess of normal shop speeds, should be demonstrated at maker plants and there given written acceptance as a sales record for controversial presentation in event of competitive challenge. It is contended that all demonstrations, when speed demonstrations are necessary, should

be conducted at makers' plants. It is contended that operating heads, after full presentation by time study departments, should assume speed dictation thus establishing the full responsibility of operating personnel. This, in itself, would eliminate much "buck-passing" and resultant friction.

Acceptance of suggested procedure, it is felt, would offer no protection whatever to a maker selling equipment not qualified to meet required shop service. On the other hand, it would protect any maker against time study department action or provisions in excess of maker guarantees and not preconsidered from equipment design viewpoints. Such excesses, it is held, crop up from time to time, with effects detrimental to

production, machines and tools and with corresponding avoidable expense. Arguments, claims and counter claims would be eliminated and much friction would be avoided, both between competitive sellers, buyer and seller, and within buyer organizations.

Those who hold to these suggestions point out that there is nothing in them that would in any way effect the ability of an equipment to produce, that a maker's continuing interest in his products would be safeguarded far more than at present, and that a buyer would be contracting for equipments designed, built and tooled to a known production, coinciding with his requirements and eliminating many disadvantages of poorly made machine tool sales.

Distribution of Iron Ore in 1935 Analyzed by Lake Superior Association

INTERESTING figures showing the distribution of Lake Superior ore in 1935 are presented in annual charts issued by the Lake Superior Iron Ore Association. Total shipments by water and all-rail during the year were 28,503,501 tons. Included are figures giving the production by ranges and shipments from upper lake ports previously published, the consumption at receiving ports and the redistribution from these ports to interior furnaces. Distribution of foreign and eastern ore is also shown. Figures given represent units of 100,000 tons.

Shipments to Lake Erie ports last year were 197 units as compared with 153 units during the previous year. Of this 51 units were consumed at receiving ports and 146 units were reshipped to interior furnaces. Lake Michigan, Detroit, and other consuming ports received 93.9 units. Lake Michigan ports received 64 units, 30 going to South Chicago, 19 to Gary and 15 to Indiana Harbor. These ports received 51 units in 1934. Detroit received 12 units last year as com-

pared with 8 the previous year. Receipts at other consuming points were Hamilton, Ont., 4 units, Sault Ste. Marie 2 units and Port Colborne 0.9 units. Miscellaneous distributions, including ore that went to charcoal blast furnaces in northern Michigan, amounted to 1.5 units.

Cleveland led the ports in amount of ore received, 55 units, of which 15 were consumed locally, the remainder going to nine consuming points in the Ohio, Pittsburgh and Wheeling districts. Conneaut took 34 units, which were shipped to the Valley and Pittsburgh districts. Ashtabula received 29 units which went to the Pittsburgh and Valley districts and Steubenville. Lorain took 21 units ten of which were consumed locally. Buffalo received 20 units, practically all of which were consumed locally. Toledo received 13 units, six of which were consumed locally, the remainder going to southern Ohio. Erie took 10 units, which were shipped to the Pittsburgh and Valley districts and to Johnstown. Fairport took 8 units which went to Pittsburgh

and the Valley districts. Huron received 7 units which were reshipped to four Ohio and Pittsburgh district points.

Units reshipped from Lake Erie ports to consuming points and districts were: Hamilton 2 units, Jackson 2 units, Portsmouth 3 units, Ironton 2 units, Columbus .01 unit, Wheeling 2 units, Canton 2 units, Steubenville 24 units, Pittsburgh 67 units, Valleys 36 units, Johnstown 6 units, eastern Pennsylvania 0.2 unit, miscellaneous 0.18 unit.

The supply of ore for consumers in the eastern district including eastern Pennsylvania and Maryland, northeastern New York and New England, consisted of 24.1 units of which 9.2 units came from New York, New Jersey and Pennsylvania mines and 14.9 units were imported. New York mines supplied 2.4 units, New Jersey mines 1.4 units and Pennsylvania mines 5.4 units.

Chile led in shipments of foreign ore with 7.9 units as compared with 9.4 units the previous year. Norway and Sweden furnished 1.7 units, Russia in Europe 1.1 units, Cuba 2.2 units, Africa 0.1 unit, Australia 1.5 units and other countries 0.3 unit. Sparrows Point received 12.2 units of the foreign ore, New York received 1.7 units, Philadelphia 0.04 unit and other ports 0.9 unit.

Time of Grinding

Carbide Tools

Reduced

By E. C. HOWELL

Carboloy Co., Detroit

DRASTIC reduction in carbide tool grinding time, made possible by following the procedure outlined below, was a feature of the series of educational demonstrations recently conducted in various cities by the Carboloy Co.

Tools such as shown in Fig. 1, dulled through ordinary use and requiring grinding on the front and side clearances only, were resharpened in 2 and 3 min. "Milled and brazed" carbide tools (Fig. 2), those furnished by the manufacturer with an unground carbide tip brazed to the steel shank, require complete grinding of all surfaces at the cutting end of the tool. A $\frac{5}{8}$ x $1\frac{1}{4}$ -in. tool of this type was completely conditioned in $4\frac{1}{2}$ to 7 min., as against from 1 to 2 hr. previously. Tools chipped through accidental abuse can also be reground quickly. The $\frac{1}{2}$ x $\frac{3}{4}$ -in. tool shown in Fig. 3, chipped to a depth of

about $\frac{3}{16}$ in., was completely reground in about 3 min.

Factors making for these marked reductions in grinding time include: (1) Proper dressing of grinding wheels for rapid grinding; (2) maintenance of constant motion of the tool while grinding; (3) use of double or composite angles on the tools; and (4) alternate grinding on the carbide tip and steel shank when necessary to hog off large amounts of stock, as in the case of the chipped tools.

Dressing the Wheels

In dressing the grinding wheels the procedure followed for the roughing and semi-finishing operations on the face of a cup wheel, or on the periphery of a straight wheel, was to shape a slight crown about $\frac{1}{16}$ in. high on the wheel. The area of contact is thus held at a minimum and generation of excessive heat avoided. The face of a cup wheel dressed flat, as usual, is recommended for finish grinding.

The second factor, namely, maintenance of constant tool motion, involves the steady motion of the tool across the surface of the wheel, and also the use of a rocking, or tilting, motion of the tool from side to side while roughing and semi-finishing. This avoids excessive grinding at any one spot on the tool and provides further means of avoiding excessive heat—an important factor in the rapid grinding of carbides.

Use of double, or composite

clearance angles on the tool is also important. When rough grinding, an angle 4 deg. greater than the finished angle desired is recommended. Finish grinding is then completed at the desired angle, grinding on the carbide tip only. By following this procedure no finish grinding on the steel shank is required, and the wheel remains open and free cutting for longer periods. This permits more rapid grinding and tends to produce a better finish.

The fourth requirement is recommended when it is necessary to hog off large amounts of stock rapidly. The procedure involves alternate grinding first on the steel shank, then on the carbide tip, continuing in this manner until the desired amount of stock is removed. Steel naturally loads silicon carbide wheels (made specifically for grinding carbides) more rapidly than ordinary wheels, whereas carbide tips tend to dress the wheels. By alternating first on the steel shanks and then on the carbide tip, more rapid grinding is possible. Ordinary aluminous oxide wheels can be used to grind on the steel shank when desired. In such cases, however, care must be used to avoid contacting the carbide tip.

Use of proper wheels, correct machines, fixtures, etc., are also involved, but the four factors described above constitute the important features of the rapid technique shown at the recent Carboloy demonstrations.



FIG. 2



FIG. 1



FIG. 3

Foresee Brighter Future for Steel In

THE steel industry, as represented here, involves the use of approximately \$5,000,000,000 in capital. This capital is owned by about 552,000 stockholders. The gathering together of this capital, over a period that represents the history of the industry in this country, comprises not only the efforts, the ingenuity, the courage and foresighted contribution to national upbuilding of a great many men of many generations, but also represents the earnings and the savings of a large number of our people through those same periods of time.

The assembly of this great amount of capital has brought into existence many mines, blast furnaces and mills. The amount of actual money which any of our concerns has is quite small as compared to the value of the properties we operate. We try to keep cash on hand only to the extent that is prudently required for present or future cash expenditures. These mines, furnaces and mills are all devoted to the single purpose of producing wealth in the form of iron and steel. Their operation requires the direct services of about 547,000 people. The number of people required indirectly because of these operations is difficult to calculate, but it is undoubtedly a very large number. We who are here tonight happen, for the time being, to be the managers of this great wealth-producing machinery. The richest of us owns but a tiny fraction of the savings which we manage. We are, in effect, in the position of trustees for those who have saved their money and put it into our industry, for the public by whose purchases we live, and for

the employees who make possible the creation of the wealth which we pass on to the community in return for other forms of wealth.

In this fashion does the current of our service to civilization keep flowing. All of this is very elementary, but because of its elementary character it should impress the community generally that this industry, like all others, comprises only the savings of a great number of thrifty individuals and the jobs of a great number of workers. And so, I think it is only fair to ask those who would speak thoughtlessly of our business, or undertake any action which would affect our properties, to become more studious and to first understand our problems, else they may work an injury to the thrifty 552,000 stockholders whose savings are involved, or to the direct jobs of 547,000 workers, whose right to work in an open and fair way without outside interference or dictation is concerned, and to the dependents of these stockholders and workers. Both the direct and indirect interest of the community as a whole in the well-being of its largest basic industry is of vital importance.

Agriculture and Industry

The two great divisions of our economy are agriculture and industry, and if they can freely exchange their products in a mutually remunerative fashion there should probably result sufficient work for every man in this country. True it is that in the great play of economic forces, involving many factors which are beyond human control, inequalities will appear at times in the proper basis of exchange of the commodities of industry and those of agriculture. Of

course, it is our duty as citizens to limit, to control, to prevent if possible, the hardships which as a consequence have from time to time in the past, and will in the future, in my opinion, be found to exist. In between these two groups, representing agriculture and industry, is the numerically larger group of those who render services. Their prosperity depends almost wholly upon the condition in which agriculture and industry find themselves, for in no way can one class permanently profit at the expense of the others.

It would not help the steel industry, its owners, or employees or the community to have a price out of line with the general exchange level, for then we could not sell steel in sufficient volume to make a profit. Our industry is basic, and prospers only as the nation prospers. It has been very much in the same position as that of agriculture for some years past. Our losses since the beginning of the depression have been so great that it would have gone under had it been less well managed. At the same time, it seems pertinent to reflect that the common stockholders of the three major steel companies received in cash dividends during the 26 years from 1908-1933, an average annual return of but 2.7 per cent on their share of invested capital in the industry. Certainly that is not a record of unreasonable compensation for capital investment.

The Trend of Civilization

And so, we who find ourselves engaged in trade and commerce are confronted at all times with numerous variations of a great many recurring problems—and from time

* An address at the 45th general meeting of the American Iron and Steel Institute, New York, May 28.

Steel Industry*

By MYRON C. TAYLOR
Chairman, United States Steel Corp.



MYRON C. TAYLOR

to time with new problems—and these we, the managers of this industry, have put forth our utmost effort and ingenuity to understand and to inaugurate measures to meet. Thus, industry is in a state of constant adjustment and readjustment, and so it will continue to be in a moving world where, we are anxious to believe and do believe, the trend of civilization, in spite of recurring and at times violent setbacks, is gradually attaining new and higher levels—levels which afford greater opportunities to greater numbers, levels which lift, in the broader use of the term, the standards of living and of enjoyment for the entire community. It is difficult at times, as in the face of the conditions which we lately encountered, to believe that these things are true, but the record of the past in this country seems to confirm it. If we continue to emerge from the depression in the definite and substantial way that we have risen from its lowest stages, there can be no doubt that the day is not far off when we shall find ourselves free of the attendant difficulties which have so long beset us.

It will serve us well to keep before our minds the incontrovertible fact that, so long as any large section of our people finds it necessary to subsist on the other sections, the nation will go further out of balance and a stable prosperity will be, for the time being, impossible.

Never in all the trials which we have endured has it been more important than now that we, and all of those who are associated together in this great enterprise, whether it be as workers or as managers, shall act with intelligence and in that spirit of fine cooperation which has been displayed by

this industry throughout the depression. Any one who undertakes to disturb the harmony of these relations is no friend of the industry, its stockholders, its managers or its employees, or of the nation and its economic recovery.

I am sure that the most pleasing reflection that will come to us of the steel industry will be that, from the outset of the depression, we held steadfast to our faith in the nation and the virility and ingenuity, courage and resourcefulness of the American people; that we left no stone unturned to cooperate in the many heroic efforts which were made throughout this long and trying period to understand and alleviate its effects, to display a high standard of morale, and to always work intelligently and constructively to help the nation back to normalcy. The steel industry, in broad terms, has nothing to regret and much to take comfort in through its conduct during the depression.

And so, as we seem to have gotten back to the profit basis and away from those trying figures in red ink, let me leave with you the thought that we reaffirm our high duty as managers of productive enterprise to continue to give our largest attention to a positive, constructive effort to make this nation what it ought to be and what it can be. It will help neither us nor the nation to be petty, personal or destructive.

The "Deblanchal", a New Rotary Melting Furnace

By C. F. HERINGTON



A NEW rotating furnace for melting steel, cast iron, malleable iron and alloys has been designed and patented by three French engineers whose names, Delot, Blanchard, and Pigal, have been combined to give the furnace its name of "Deblanchal."

The furnace was first built and put in successful operation by Fours et Fumisterie Industrielle, of Paris, France. Since 1931 the Deblanchal has been built in a large variety of capacities ranging from 1000 lb. to 15 tons. The furnace shown in Fig. 1 has a capacity of from 10 to 15 tons depending upon the depth of the melted bath. This particular furnace was built for Forges et Aciéries du Nord et de l'Est, Valenciennes, France, and placed in operation early this year.

The outstanding achievement of the Deblanchal design is the fact that it is now possible to obtain a metal having superior mechanical characteristics from an inexpensive bath *with control* of the composition of the metals before pouring. The amazing adaptability of the furnace to the entire steel and iron industry, bringing with it new and practical benefits, makes its introduction in this country a noteworthy event.

The Deblanchal furnace is built of steel plate with separate cone shaped ends fastened to the cylindrical section by means of shackle bolts. The ends may readily be attached or removed. These ends are stiffened by welded steel ribs to pre-

THE "Deblanchal," a new furnace for melting cast iron, malleable iron, steel and alloys, has found favor abroad due to the high quality of product produced, low cost of operation, ease of charge and pouring, rapid melting rate and simplicity of design. The furnace uses heavy fuel oil with a preheated air blast; it is fundamentally a refining furnace and thus resembles, in the working of steel, the open-hearth or electric furnace. In this, the first description of the furnace, the author discusses the construction and operation of the furnace, together with tabulations of operating costs and analyses of the products produced.

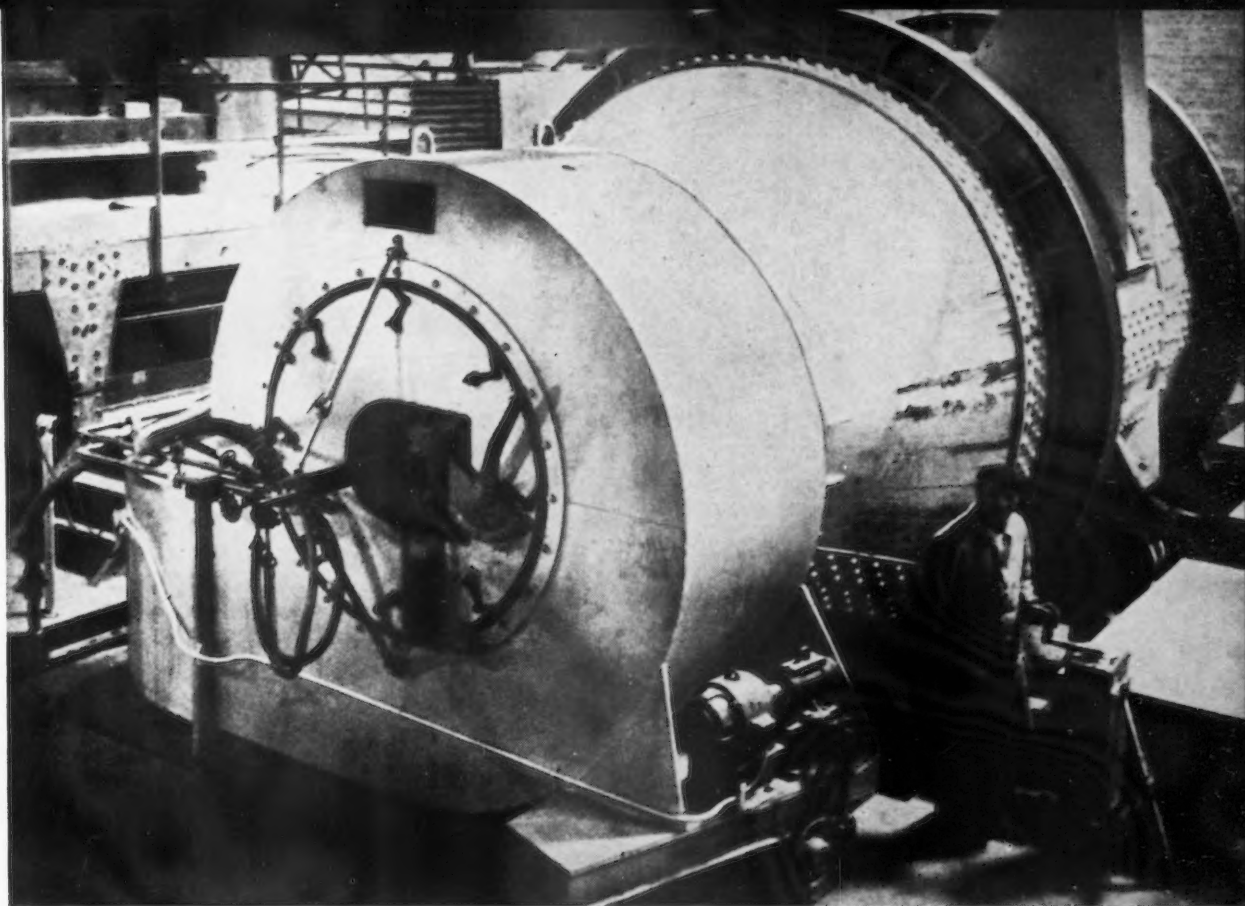
vent deformation. A removable pouring spout is bolted to the center of the furnace shell in such position that the molten metal can be poured into any capacity ladle. The spout can be turned by rotating the furnace, thus permitting the metal to be poured from the lowest part of the furnace and avoiding any discharge of slag with the metal. The pouring is aided by the toward center slope of the cylindrical section, as shown in Fig. 2. The slag opening having a wedge door is at right angles to the pouring spout in the furnace shell. The liquid slag produced by the furnace may be drained through the slag opening in two minutes.

An added convenience is a movable peephole covered with a blue glass, thus permitting the operator to have both a constant view of the interior during the melting and to take samples of the melt. The importance of sample taking in order to control temperature or to make analyses is easily discernible. This feature is exclusive with the Deblanchal furnace.

Lining

The furnace shell is lined with either an acid or basic material according to the metals to be melted. An acid lining is made of silica

FIG. 1 — Preheated air carriage of a 12 to 15-ton Deblanchal furnace. This view shows the burner, and, also, facilities for moving the air carriage aside to allow charging of the furnace.



clay placed by pneumatic rammers into demountable sheet steel forms which can be removed separately for replacement purposes. If preferred, silica blocks molded to form may be used. During the installation of the lining, the furnace is placed in a vertical position, the conical ends being first removed. The ends are lined separately, then refastened to the shell.

A basic lining is made of magnesite brick or of a special magnesite chrome brick. These bricks are manufactured for this purpose

and are laid dry or with a very thin joint of clay of the same composition. Subsequently the lining is baked in place. This type of lining permits the working of steels on a basic hearth, viz., manganese, chrome, nickel, tungsten, etc.

After the lining has been placed, the furnace is reassembled and dried very slowly by gas or fuel oil flame in a temperature not exceeding 400 deg. F. Immediately thereafter the lining is burned in gradually by raising the temperature in about ten hours to 3000 deg. F.

The furnace is then ready for immediate use.

Rotation

A rotating movement of the furnace is given to the shell by means of rollers, either four or eight, depending upon the size of the furnace. These rollers are mounted on ball bearings, and provision is made for guiding the tires and supporting the shell at the burner by means of flanges. The roller tires are mounted upon a cast iron frame securely riveted to the shell. Power

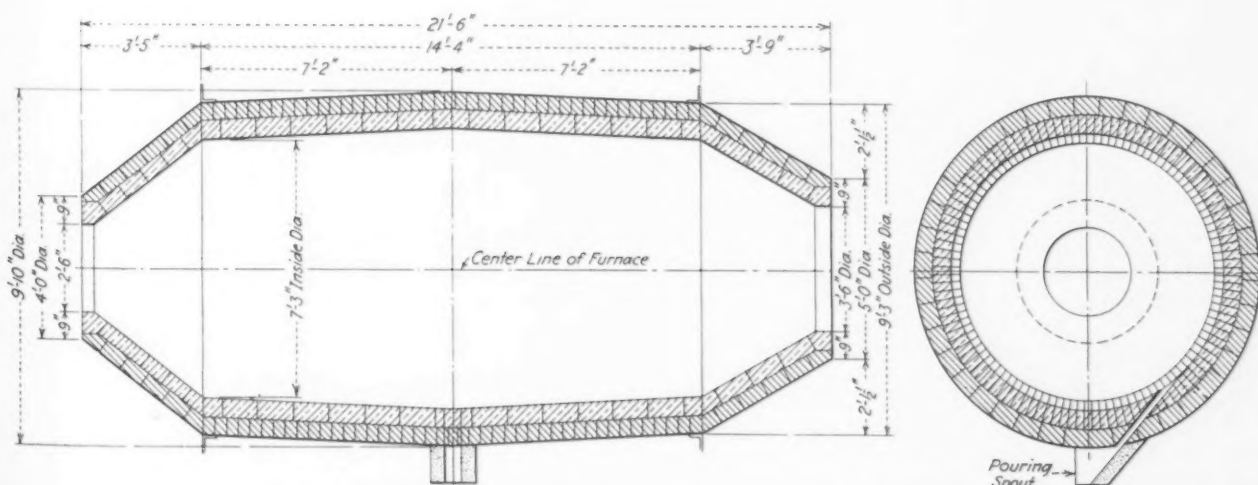


FIG. 2—Longitudinal section through the furnace. Notice that pouring is aided by the slope toward center of the cylindrical section.

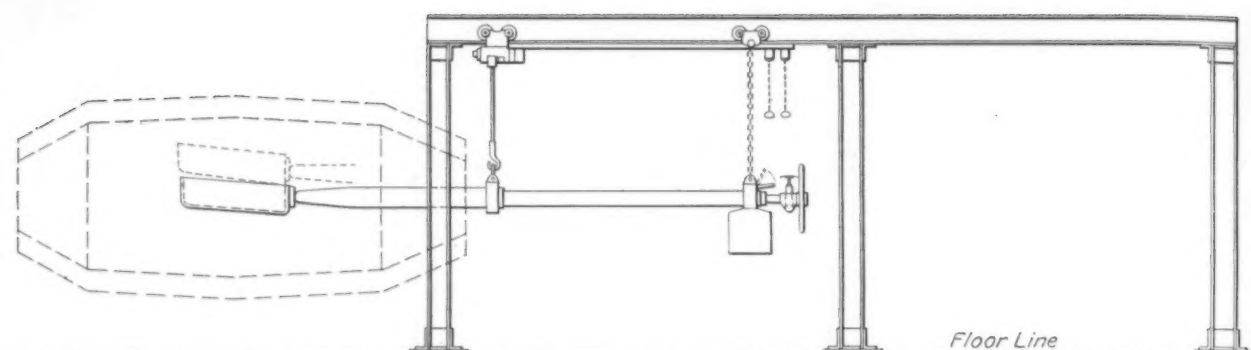


FIG. 3—The Deblanchal furnace may be charged either by hand or by means of a mechanical charging device similar to the one sketched here.

is transmitted either by a girth gear or by a motor reduction unit which drives the roller wheels.

Rotation is begun immediately upon ignition of the fuel, the furnace turning slowly at first at the rate of $\frac{1}{4}$ revolution per min. It continues rotating at this rate until the metal becomes soft, at which time the revolutions are increased

to 1 per min. At this latter speed the molten bath within the furnace remains level and stationary while the hot lining passes beneath it. After charging, the pouring holes are closed with refractory clay plugs to provide an uninterrupted surface within the furnace.

Rotation continues at all times in the same direction and no reversal

is necessary. Any samples taken or additions made for correction of the composition of the melt are done while the furnace is in motion.

Charging

The furnace is charged by hand or by means of a mechanical charging implement, a sketch of which is given in Fig. 3. The burner is so constructed that it may be swung aside leaving a large, unobstructed opening of large diameter for charging purposes. No specific plan of loading the charger or dumping the materials within the furnace is required. The amount of the charge, however, is generally computed so as to leave approximately two feet overhead space.

Burner

The furnace is equipped with a burner of the type designed for the use of all heavy liquid fuel oils in conjunction with highly preheated air. This burner consists of two distinct parts, one for the distribution of the air, and one for the injection and atomization of the oil. This latter process is simultaneous and no auxiliary parts are included in the burner to accomplish atomization. The atomization is attained by projecting the oil at the proper speed under a pressure of about 250 lb. per sq. in. The resulting fuel spray is exceedingly fine and forms a cone at the exit of the injector, producing a most effective flame of about 3272 deg. F. The accompanying rapid combustion means that oxidation of the elements forming the charge is reduced to a minimum.

Combustion

The combustion of the fuel oil in the furnace is regulated automatically. It is necessary only to follow the rise in temperature of the pre-

TABLE I
Comparison of Melting Costs
(Deblanchal, Electric and Air Furnaces)

Electric Furnace Melting Steel in Pennsylvania:

Electric power and electrodes	\$7.20
Furnace Lining Repairs	3.75
Total cost per ton	\$10.95

Estimated Cost of Melting Steel in 5-ton Deblanchal:

Fuel Oil (45 gal. x 5 = 225 gal. @ $3\frac{1}{2}$ c.)	\$7.88
Electric power (15 kw-hr. @ \$0.015)	0.23
Furnace lining repairs (5 x \$1.00 per ton)	5.00
Total cost for 5 tons	\$13.11
Total cost for 1 ton	\$2.62

Air furnace Melting Malleable Iron in Pennsylvania:

Coal (@ \$5.00 per ton = \$1.75, plus preparation of pulverized coal)	\$2.55
Brickwork repairs (including labor)	1.65
Power, transport and feeding pulverized coal .....	.25
Total cost per ton	\$4.45

A 2-ton Deblanchal Furnace Melting Cast Iron in France:

Fuel oil (49 gal. @ 48 Fr. [@ \$0.0659]) *	\$3.16
Power (10 kw-hr. @ 4 Fr.)	0.26
Lining repairs (120 heats @ 23.65 Fr.)	1.56
Cost for 2 gross tons	\$4.98
Cost for 1 net ton	\$2.20

Cost of Melting Malleable or Cast Iron in 8-ton Deblanchal Furnace in United States:

Fuel Oil (30 x 8 = 240 gal. @ $3\frac{1}{2}$ c.)	\$8.40
Power (5 kw-hr. x 8 x \$0.015)	0.60
Lining repairs (\$600.00 ÷ 200 heats)	3.00
Cost for 8 tons	\$12.00
Cost per net ton	\$1.50

heated air for combustion in order to know the temperature of the furnace, since there is a direct relation between them due to the operation of the recuperator described below. After the furnace is placed in operation, it will be possible to prepare a chart showing the exact figures.

Recuperator

The waste gases leave the furnace through a gas exit port and pass into a refractory lined, waste gas flue having a cross section designed to avoid all eddying of the gases and excessive wear of the lining. This flue leads to the recuperator where the heat given off by these waste gases is utilized to preheat the combustion air before it is mixed with the fuel oil.

The recuperator is composed of tubes and supports made of an alloy steel, their number depending upon the size of the furnace and the desired temperature of the preheat. It may be located at such distance from the furnace that rapid cooling of the waste gases may be effected by the introduction

of cold air. The cold air is introduced into the recuperator by means of blowers and the hot air is then conveyed through insulated piping to the preheated air port at the burner end of the furnace.

The amount of preheated air entering the furnace is controlled by an automatic temperature controller and a valve which permits the circulation of air within the recuperator when the furnace is stopped in order to prevent an excessive temperature.

The amount of preheated air used with the fuel oil is approximately 192 cu. ft. per lb. of fuel oil measured at 59 deg. F. and 3 lb. pressure. The temperature of the preheated air rises constantly during the operation, the initial temperature being from 716 to 756 deg. F. and the final temperature from 1076 to 1112 deg. F. for a temperature of 2912 deg. F. within the furnace. The French engineers recommend preheating the air as

follows: 1112 deg. F. for 2912 deg. F. within the furnace; 1202 deg. F. for 3092 deg. F. within the furnace; and 1292 deg. F. for 3272 deg. F. within the furnace.

A complete furnace set up for operation is shown in Fig. 4.

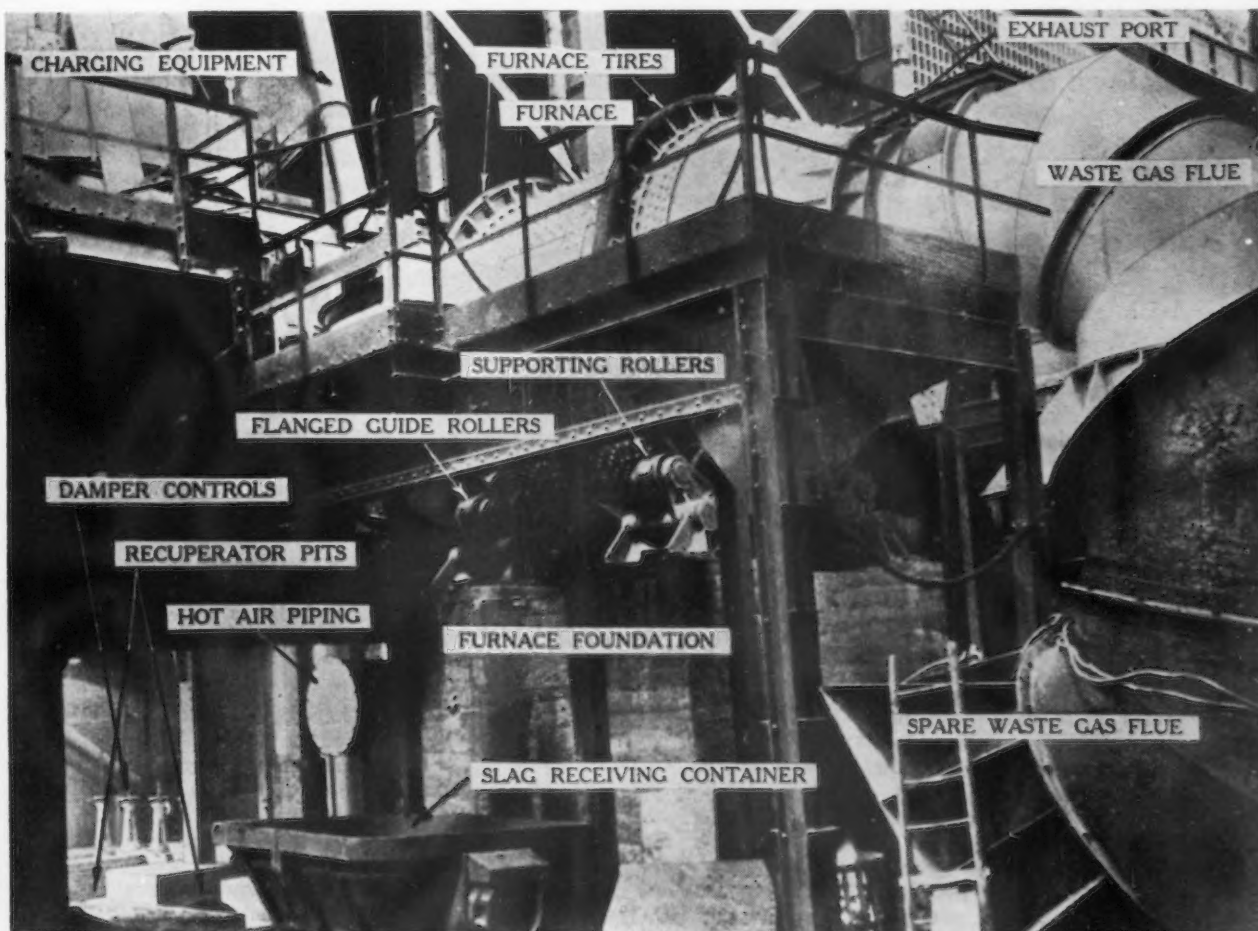
Steel Melting

The Deblanchal is fundamentally a refining furnace and thus resembles, in the working of steels, the open-hearth or electric furnace. The important and advantageous difference, however, lies in the fact that the refining quality of the flame is very soft and permits pouring a charge comparatively low in carbon, silicon, and manganese.

Like the electric furnace, the Deblanchal provides very rapid melting of the charge and at the same time allows the neutralization of the flame as soon as a desired degree of refining has been obtained, for the addition of special metals or to obtain a desired temperature.

The process of working special steels in the Deblanchal is a simple
(CONCLUDED ON PAGE 114)

FIG. 4—A 12 to 15-ton Deblanchal furnace located in position. This unit will melt a charge in two hours.





THIS WEEK ON THE ASSEMBLY LINE



... Production dips sharply as car builders let retail sales catch up with factory output.

o o o

... Chrysler may substitute carburized gears for oil-hardening variety.

o o o

... Packard to grant workers a week's vacation with pay.

o o o

... Wide market expected for recently introduced all-steel trailer for passenger cars.

DETROIT, June 9.—Automotive production took another rapid dip last week, according to Cram's Reports, reaching a level of 101,869, down almost 7000 from the previous week's volume of 108,346. The present trend in production reflects the tactics of automobile manufacturers in attempting to adjust their output so that when the summer shut-down commences dealers will be stocked with just the number of cars they can sell before the new models are announced.

May sales have been sustained at an unusually high rate and it is expected that the issuance of bonus money, beginning June 15, will act as a stimulant to a sagging summer retail demand. In this connection, the dealer is torn between two hopes, one that the bonus money may bolster new car

sales, the other and, perhaps, stronger one, that the bonus money will help relieve used car stocks. To further complicate the situation, many of the car manufacturers are faced with large change-over programs involving new engines, new transmissions, new rear axles and new bodies that will in more than one plant require a change-over period of five to six weeks. There is even talk in Detroit now of at least one plant shutting down certain of its departments beginning June 20, although assemblies will continue on the basis of banks of parts ahead. The start of these shut-down periods will run as late as the 15th of August, so that we will have a staggered situation in the industry as far as production is concerned. The dip in seasonal employment, therefore, should be

moderate and should begin to indicate an upturn at least by the first of September.

Incomplete reports indicate that May retail sales were surprisingly high, with a number of different makes surpassing previous records. R. L. Polk & Co.'s estimates of registrations for April indicates that the figures for both trucks and commercial cars far exceeded any month in history of the automotive industry, being placed at 65,000 units. The passenger car figure, placed at 398,000 was only exceeded in April, 1929, when 481,675 passenger cars were registered. The preliminary passenger car figure for May is 355,000 units.

Announcement of new third-quarter prices for the principal categories of steel has tended to strengthen buying on the part of the automotive industry. One seller reported the placement of a rather substantial order last week for delivery before the end of the month, when new prices go into effect. No buying ahead on 1937 specifications has been noted, however, in order to save the \$2.00 a ton difference in price. As a whole, most specifications being issued today are to balance stocks for the season-end clean-up.

Gear Steel Changes

Chrysler is said to be considering changing the steel used for its transmission gears from an oil-hardening type to one of its own special molybdenum steels. This new analysis will probably run 0.30 to 0.35 per cent carbon and 0.15 to 0.20 per cent molybdenum. In heat-treatment the gears will

By FRANK J. OLIVER
Detroit Editor, The Iron Age



be given a shallow case for surface hardness, so that the skin will compare in analysis with the present special Chrysler axle molybdenum steel which runs from about 0.60 to 0.65 per cent carbon. Steel makers do not receive this news with much enthusiasm, since Chrysler specifications are rather rigidly drawn, and it is difficult to dispose of a batch of steel if it does not exactly meet the analysis. Some use can usually be found for an S.A.E. steel because if it does not meet one customer's requirements, it will satisfy another's.

Incidentally in this connection, as far as alloy steels are concerned, the present tendency is to maintain the same physical properties, if possible, but at a lowered cost. Through pressure brought to bear by large automotive buyers, there has been considerable experimenting with the reduction of alloy content without affecting such properties as strength, machinability, fatigue resistance and control of grain size.

Labor Policies

A forward move in labor policies has been inaugurated by the Packard Motor Car Co. Following the lead of the steel industry, Packard is to grant up to one week's vacation with pay to hourly wage workers who have continuous service records of one year or more prior to June 1. The plan is being worked out on the basis of the accumulation of monthly vacation credits of one-half day, or four hours, for each full month of continuous service during the year. This means that the worker

will receive a vacation pay amounting to his standard hourly rate for 48 hours. If, because of reduction in force or for any other reason, a worker is laid off after June 1, he is also to receive a separation pay equivalent to his vacation credits up to the time of the lay-off. A retirement plan is also included for workers 65 years of age or older. Annual retirement pay will be granted at the rate of \$25.00 for each year of past service, if the separation results from the inability of the worker to remain at his task. This means that a worker with a record of 20 years' service will receive an annual pay of \$400. Retirement is not required at the age of 65, but is at the option of the worker.

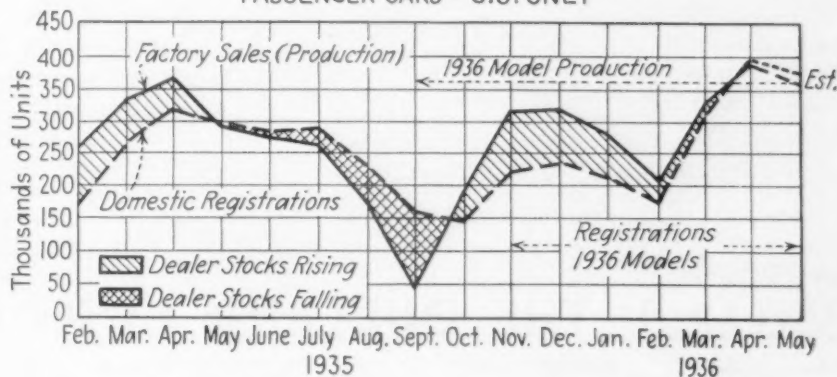
Moves of this kind have been attributed to the desire to "keep labor quiet." Undoubtedly this is a factor in the case, as well as the tendency for broader social think-

ing on the part of manufacturers. The recently rejuvenated United Automobile Workers claim some credit for Chrysler's recent pay increase of 5 per cent. While no pressure was brought to bear directly on the management, the group felt that the mere fact of its existence as a possible threat to the peace of the industry had influenced a move in favor of the workers.

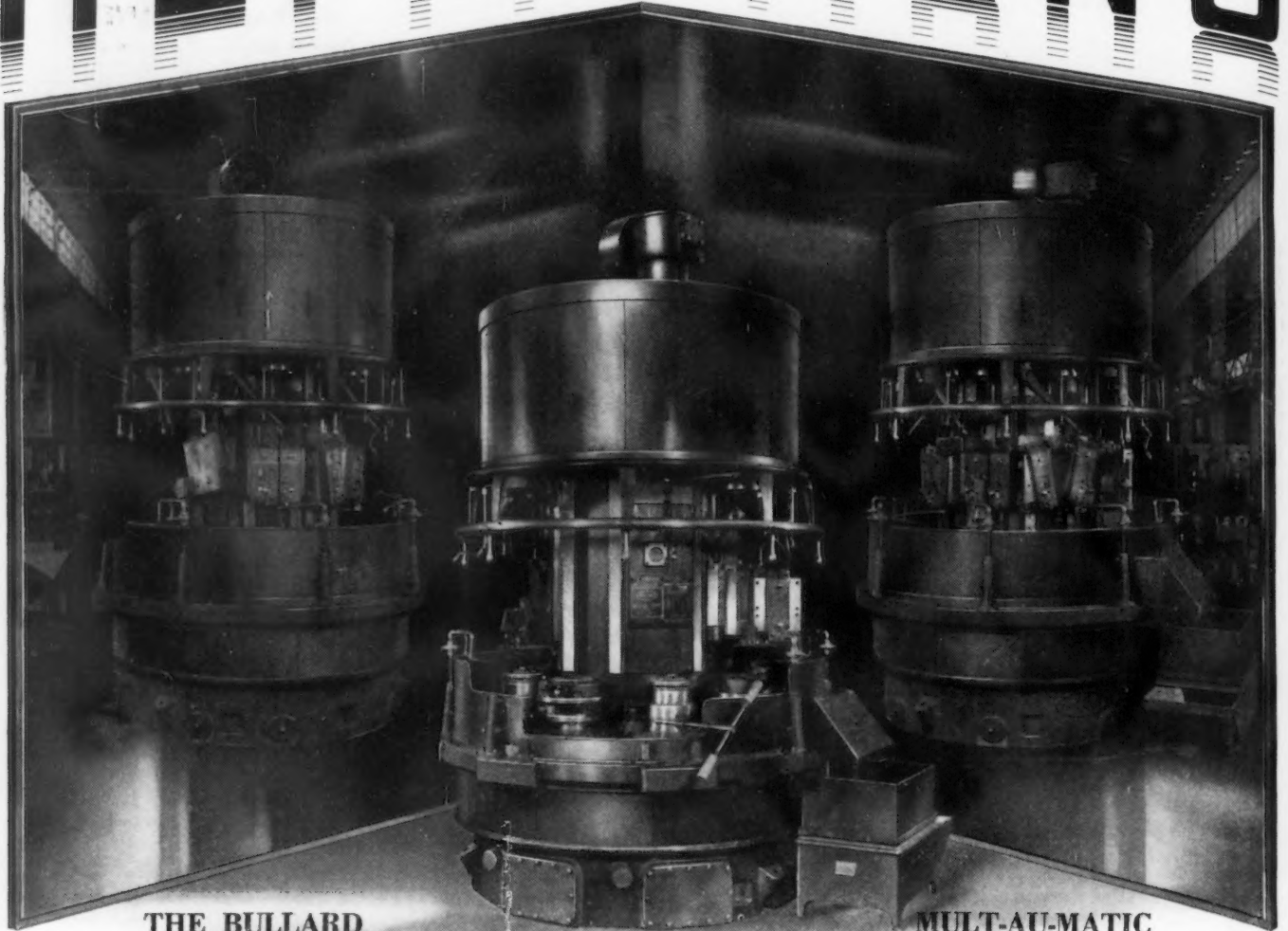
Last week this group moved to organize tool and die makers, although this field has heretofore been more or less in the province of the Mechanics Educational Society and the Machinists' Union. One local of the M.E.S.A. has already voted to affiliate with the U.A.W. and at least one other local is considering joining the A. F. of L. affiliate.

Whereas a new broom is bound to sweep a little cleaner than an old one and a new group with lots

RELATION OF FACTORY SALES TO DEALERS AND REGISTRATIONS
 PASSENGER CARS - U.S. ONLY



REFLECTIONS



THE BULLARD

8" — 8 SPINDLE TYPE D

MULT-AU-MATIC

The Profitable Answer To Your Reflections...

Reflections: Mental consideration of some suggested idea usually with reference to belief or disbelief or to some course of action.—*Webster's International.*

Reflection on Past Performance of your present equipment will undoubtedly determine the type of replacement.

Reflection will also advise you that Mult-Au-Matic Performance in competitive plants is a factor in competitive markets.

Which Brings us to the Point—

What can Mult-Au-Matics
DO for You?

REFLECT

We suggest that Past and Present Mult-Au-Matic Performance with its Efficiency and Economy provides a means for Lower Manufacturing Costs.

It's merely a matter of letting Bullard Engineering Service submit Estimates on whatever Jobs you have in mind.

For instance—What are your Times on Ring Gears?—or for that matter any other Job? Reflect and then—Let us give You Mult-Au-Matic production data.



THE BULLARD COMPANY

Bridgeport

Connecticut



of enthusiasm is bound to make some headway in selling the workers on the idea of organizing, it is still felt that psychologically the average Detroit worker is not in the mood to be sold today. A few weeks ago, an attempt was made to organize the polishers in a small stamping and die-casting job shop. By threats and intimidation, the organizing group, which was composed of non-employees of the company, succeeded in practically closing down the polishing department within a week. When attempts were made, however, to cause a walk-out of all the workers in the plant, less than ten attended a mass meeting called for the purpose. A few sluggings occurred in connection with this particular effort, but it is interesting to note that, in one instance, twelve of the workers in the plant expressed their willingness to testify in court against a slugger, indicating that the average worker insists on fair play.

Future Cars

Last week at the summer meeting of the Society of Automotive Engineers, two prominent engineers of the industry pointed out that revolution in design will not bring success in the automotive field. Styles can be changed only slowly and from the economic viewpoint of the owner, style depreciation is the biggest single influence in obsoleting any new car. Control and general operation of the public's cars must be changed slowly, carefully and safely. Rear-engine streamlined cars, for example, have many obvious advantages such as clearer vision, elimination of noise, vibration and odors from the engine, improved riding comfort, beauty and grace

due to streamlining and twice as many miles per gallon while touring, because of reduced wind resistance. Rear-engine cars, however, will not be popularly accepted until they have been developed to such an extent as to be demonstrably superior to present front-engine designs.

Other comments included predictions that power plants will develop more horsepower a pound of weight and will be more compact, and that more superchargers will appear. There should also be more over-drive transmissions in 1937, it was stated. The possibilities of developing a fully automatic transmission completely free from driver control and driver headwork were said to be very, very remote, however.

Steel Trailer

Foreseeing a large market for a low-cost utility trailer for passenger cars, the Mullins Mfg. Corp., Salem, Ohio, has designed an all-steel type of modern streamline design which will be sold through regularly established automobile dealers. The company will get into production about July 1, and expects to produce about 10,000 units during the balance of the year.

Most people think of a trailer as a small house on wheels, and, in fact, most of them have been built along these lines, using plywood as the chief structural material. This particular utility trailer is intended as a baggage carrier, or for samples of merchandise. Through the use of pneumatic mattresses and pillows, it can be used to provide sleeping accommodations for two persons. The hood is raised back at an

angle of about 45 deg., and waterproof curtains offer protection and seclusion. This particular unit is priced to sell at \$119.50, so that it should have wide appeal. It weighs about 485 lb. and has an over-all length of 8 ft. The wheels are stamped steel and the unit is carried on an I-beam axle with 17 x 5.25 in. tires.

The Mullins company first became widely known for the manufacture of steel boats. Later it became a large supplier of stampings for washing machine tubs, refrigerators and automobiles. One of its plants at Salem has been completely re-equipped for volume production of the new trailer.

Peninsula Metal Products Co. of Detroit also announced last week a similar type of utility trailer made of pressed steel, but mounted on one wheel. It weighs 275 lb. empty, and will retail for \$165 through automobile dealers.

NICKEL alloy steels available from various jobbers in the United States and Canada are listed in a 20-page booklet entitled "Buyers' Guide to Warehouse Stocks of Nickel Alloy Steels," issued by the International Nickel Co., 67 Wall Street, New York. One section gives sources for steels with 1 to 5 per cent nickel, with or without alloying elements, and another, the sources for stainless nickel chromium steels. Additional valuable data include an outline of the properties and applications of constructional grades of nickel alloy steels, a listing of trade names, and indexes covering compositions and forms and shapes available from the various sources listed in the warehouse stocks' sections.



MOUNTED on two standard automobile wheels, this Mullins streamlined trailer can be used either as a luggage carrier or converted into a sleeping compartment through the use of curtains and pneumatic mattresses. (Lid is tilted back.) Priced attractively low and marketed through regular automobile dealers, it is expected to find a large volume market.

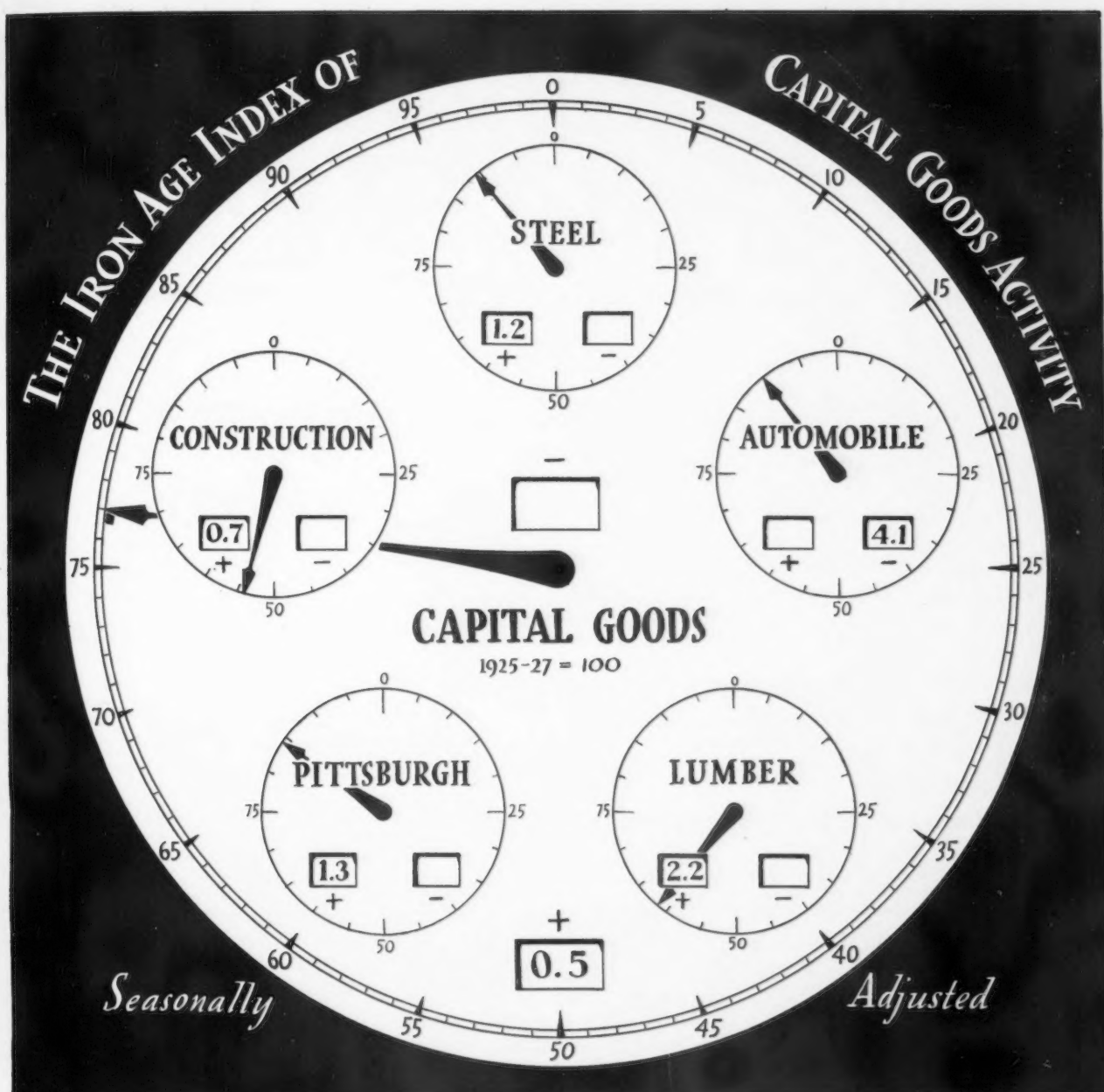
Current Metal Working Activity Statistically Shown

These Data Are Assembled by The Iron Age from Recognized Sources and Are Changed Regularly as More Recent Figures Are Made Available.

	April, 1936	March, 1936	April, 1935	Four Months, 1935	Four Months, 1936
Raw Materials:					
Lake ore consumption (gross tons)*.....	3,485,293	2,897,867	2,360,002	9,690,650	11,967,034
Coke production (net tons)*.....	3,554,617	3,366,665	2,736,723	11,512,399	13,665,166
Pig Iron:					
Pig iron output—monthly (gross tons)*.....	2,403,683	2,040,311	1,663,475	6,519,391	8,293,585
Pig iron output—daily (gross tons)*.....	80,125	65,816	55,449	54,328	68,542
Castings:					
Malleable castings—production (net tons)*.....	50,954	45,536	42,035	169,620	185,299
Malleable castings—orders (net tons)*.....	.....	47,844	37,394	163,424	.....
Steel castings—production (net tons)*.....	.....	51,674	31,952	122,614	.....
Steel castings—orders (net tons)*.....	.....	71,341	28,233	123,030	.....
Steel Ingots:					
Steel ingot production—monthly (gross tons)*.....	3,942,254	3,342,619	2,640,602	11,150,326	13,295,237
Steel ingot production—daily (gross tons)*.....	151,625	128,562	101,562	108,256	127,839
Steel ingot production—per cent of capacity*..	69.09	58.58	45.88	48.9	58.25
Finished Steel:					
Trackwork shipments (net tons)*.....	7,031	6,258	4,472	13,137	20,771
Steel rail orders (gross tons)*.....	150,057	62,300	14,000	224,592	574,348
Sheet steel sales (net tons)*.....	190,269	251,818	168,093	866,303	755,136
Sheet steel production (net tons)*.....	217,975	207,820	209,219	891,077	840,154
Fabricated shape orders (net tons)*.....	101,614	104,868	95,380	337,852	462,912
Fabricated shape shipments (net tons)*.....	124,044	102,478	85,629	328,915	377,319
Fabricated plate orders (net tons)*.....	.....	29,787	13,244	63,918	.....
Reinforcing bar awards (net tons)*.....	26,700	24,025	30,490	87,840	142,365
U. S. Steel Corp. shipments (tons)*.....	979,907	783,552	591,728	2,376,976	3,161,188
Ohio River steel shipments (net tons)*.....	74,110	116,510	57,825	249,922	270,162
Fabricated Products:					
Automobile production, U. S. and Canada*....	527,726	438,945	501,812	1,610,753	1,644,851
Construction contracts, 37 Eastern States*.....	\$234,806,300	\$198,978,300	\$124,020,000	\$421,781,500	\$780,627,600
Steel barrel shipments (number)*.....	730,099	648,165	610,848	1,977,132	2,422,608
Steel furniture shipments (dollars)*.....	.....	\$1,585,800	\$1,122,987	\$4,547,236	.....
Steel boiler orders (sq. ft.)*.....	783,961	589,676	315,562	1,638,134	2,807,388
Locomotive orders (number)*.....	15	13	2	11	88
Freight car orders (number)*.....	3,650	627	600	1,430	12,557
Machine tool index*.....	125.7	105.3	65.6	†60.3	114.4
Foundry equipment index*.....	134.0	115.0	113.2	†86.0	119.8
Foreign Trade:					
Total iron and steel imports (gross tons)*.....	49,277	56,720	28,866	101,964	199,844
Imports of pig iron (gross tons)*.....	11,982	23,743	8,247	23,729	65,418
Imports of all rolled steel (gross tons)*.....	22,167	22,046	13,566	54,355	79,964
Total iron and steel exports (gross tons)*.....	301,987	264,337	205,336	1,019,648	1,021,690
Exports of all rolled steel (gross tons)*.....	98,678	92,606	64,625	283,833	336,397
Exports of finished steel (gross tons)*.....	96,145	86,676	54,034	247,850	319,463
Exports of scrap (gross tons)*.....	196,906	163,295	131,731	691,419	356,272
British Production:					
British pig iron production (gross tons)*.....	629,800	633,600	526,300	2,084,800	2,444,000
British steel ingot production (gross tons)*.....	991,500	980,100	808,700	3,177,900	3,822,600
Non-Ferrous Metals:					
Lead production (net tons)*.....	38,073	35,150	32,389	122,119	143,646
Lead shipments (net tons)*.....	40,457	36,743	40,922	136,113	144,876
Zinc production (net tons)*.....	43,252	42,483	35,329	140,667	163,880
Zinc shipments (net tons)*.....	42,311	38,159	38,455	149,992	166,856
Deliveries of tin (gross tons)*.....	6,235	5,520	5,825	19,825	23,990

† Three months' average.

Source of figures: *Lake Superior Iron Ore Association; ^bBureau of Mines; ^cTHE IRON AGE; ^dBureau of the Census; ^eAmerican Iron and Steel Institute; ^fNational Association of Flat-Rolled Steel Manufacturers; ^gAmerican Institute of Steel Construction; ^hUnited States Steel Corp.; ⁱUnited States Engineer, Pittsburgh; ^jWhen preliminary, from Automobile Manufacturers Association—Final figures from Bureau of the Census; ^kF. W. Dodge Corp.; ^lRailway Age; ^mNational Machine Tool Builders Association; ⁿFoundry Equipment Manufacturers Association; ^oDepartment of Commerce; ^pBritish Iron and Steel Federation; ^qAmerican Bureau of Metal Statistics; ^rAmerican Zinc Institute, Inc.; ^sNew York Commodities Exchange.



Same Week Last Month	Preceding Week	Last Week
76.5	75.5	76.0
86.7	88.5	89.7
99.3	94.0	89.9
56.9	59.2	61.4
81.8	82.8	84.1
56.6	53.8	54.5

COMBINED INDEX		
Steel Ingot Production	56.5	60.5
Automobile Production	54.5	79.6
Lumber Shipments	80.2	62.6
Pittsburgh Industrial Production	46.0	52.5
Heavy Engineering Construction	64.9	72.3
	37.7	36.2

Same Week 1935	Same Week 1934	Same Week 1933
56.5	60.5	48.5
54.5	79.6	61.7
80.2	62.6	47.2
46.0	52.5	51.0
64.9	72.3	54.7
37.7	36.2	26.9

SUSTAINED industrial operations, opposing a normal seasonal tendency for activity to lessen, has raised THE IRON AGE weekly capital goods index to 76.0 per cent of average. The advance last week of half a point was shared in by all component indices save automobile production. In the latter respect, output dipped 6500 units under the preceding week. Steel mill operations, however, were maintained at 68 per cent. Lumber shipments fell in volume, but seasonally corrected were higher. In the important Pittsburgh area, in-

dustrial production moved higher. Construction made headway, as contract awards rose above the previous level.

With one exception, the combined capital goods index, which now stands at 76 per cent of base-year average, has not fallen below 73.5 nor risen above 77.5 since the beginning of March. The range has been 4.0 points. The latest figure of 76.0 compares with 75.5 a week ago, 76.5 a month ago and 56.5 a year ago. The increase over the same week a year ago amounts to approximately 34 per cent.

Components of The Index (1) Steel Ingot Production Rate, from THE IRON AGE; (2) Automobile Production, from Cram's Reports, Inc.; (3) Revenue Freight Carloadings of Forest Products, from Association of American Railroads; (4) Industrial Productive Activity in Pittsburgh District, from Bureau of Business Research of University of Pittsburgh; (5) Heavy Construction Contract Awards, from Engineering News-Record.



... Open break in ranks of organized labor is watched with interest by steel industry.

o o o

... John L. Lewis to direct campaign to organize steel plants.

o o o

... Tax, relief and other bills are expected to be passed before Congress adjourns.

o o o

... Legislators urge laws for regulation of hours and wages.

o o o

BY L. W. MOFFETT

Resident Washington Editor,
The Iron Age

o o o

WASHINGTON, June 9—Now that the Amalgamated Association of Iron, Steel and Tin Workers has yielded to the ultimatum of Chairman John L. Lewis, of the Committee for Industrial Organization, by ceasing its "fluttering and procrastination" and flying into the anxiously waiting arms of the industrial union, Mr. Lewis has announced that the drive to organize the iron and steel industry will be started "rather soon." . . . Acceptance of the C. I. O.'s offer to contribute "up to \$500,000" if the Amalgamated association would "cooperate" with it was formally announced last Thursday night in Washington following a conference between Lewis and four Amalgamated association officers, Secretary Louis Leonard

and Vice-Presidents Edward Miller, Thomas Gillis and Joseph Gaither. . . . With it was made public an agreement, duly signed and sealed, and showing clearly that such co-operation as Mr. Lewis wants will be under his dictation. . . .

Whatever its justification, significance was given to the fact that the agreement did not bear the name of President M. F. Tighe of the Association. . . . But whether this meant a split within the ranks of the Association, such as the move made complete within the American Federation of Labor, was not indicated. . . .

It most emphatically did cut the last strand, barring actual withdrawal, between the A. F. of L. and its nine rebellious industrial unions. . . . It also stressed their scornful defiance of demand of the executive council of the A. F. of L., that they disband. . . . The question of separation of the industrial unions from control of their parent, a craft union organization, impends. . . . The C. I. O. has insisted it proposes, if possible, to continue its work as an affiliate of

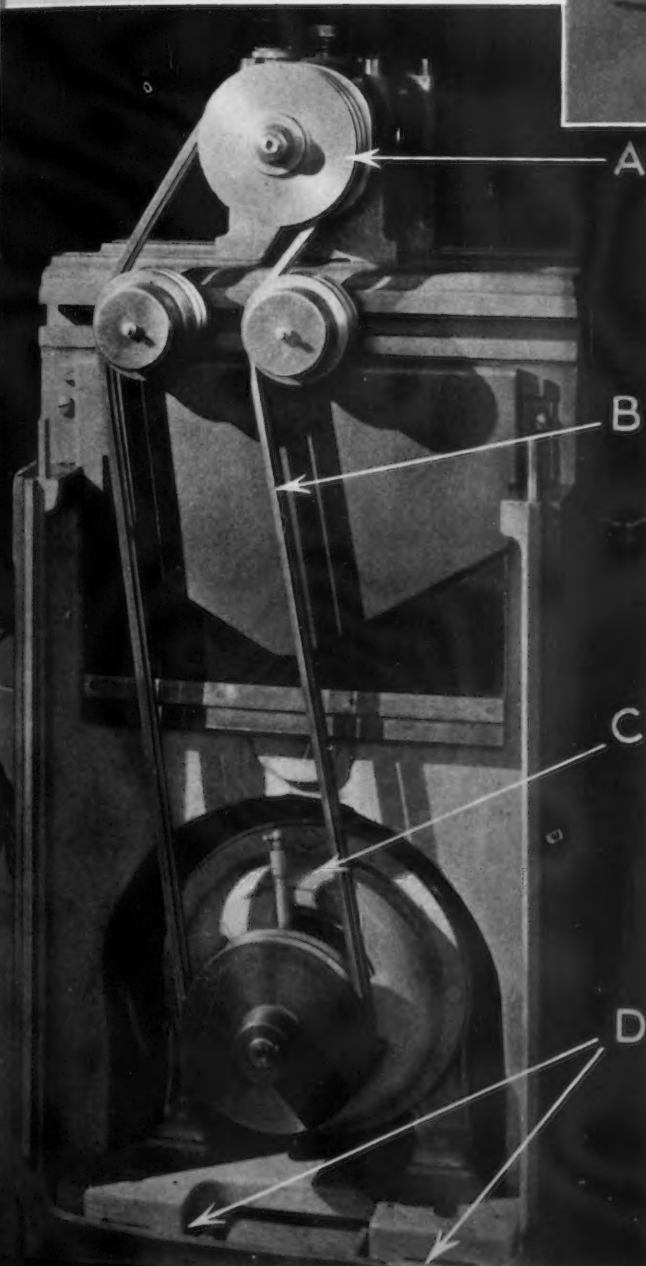
the A. F. of L., but rather than abandon its campaign to organize mass industries vertically it will, if necessary, leave the A. F. of L., provided it does not gain control of it. . . .

The issue may not be fought until it is brought to the convention floor at the annual meeting of the A. F. of L. . . . Meanwhile, President William Green, extremely embittered at the move of the belligerent C. I. O., to organize the steel industry, reluctantly conceded that Lewis had succeeded and he had failed in winning over the Amalgamated association and withdrew the A. F. of L.'s active support to organize the steel industry. . . . As if to complete the humiliation of both himself and his still powerful organization, Green reduced the A. F. of L. to the role of a mere spectator taking a stand on the sidelines and watching the Lewis-directed C. I. O., while it undertakes the job of organizing the steel industry. . . . Watching, with doubt that success will greet its efforts. . . .

"All interested will have an opportunity to learn of the virtue, validity and successes of said plan," Green announced in a statement, referring to the C. I. O. move. . . . "All will await with interest the final outcome of this new organization drive in the steel manufacturing industry." . . . In striking contrast to previous fiery statements which vigorously attacked the C. I. O., and had ordered its disbandment, Green's comment on the C. I. O.-Amalgamated association merger seemed to be studied in its mildness. . . . Submissive, it plaintively pointed out that "for obvious reasons, it will now be impossible to unite and concentrate the full and complete economic, financial and organizing force of the American Federation of Labor in an immediate steel organizing campaign drive." . . . Continuing, Green said that "it has been quite evident for a long time

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that those in charge of administration of the affairs of the C. I. O. were determined to experiment in the application of their one form of organization which they had so definitely espoused." . . . And it might be added the C. I. O. is busily espousing a campaign by which it hopes to become masters of the A. F. of L., and convert it into an industrial union organization, thus being in a position to oust the craft unionists instead of being ousted by them. . . . This objective, if accomplished, would be historic.

Mr. Green, however, gave free expression to his hitherto suppressed emotions on Saturday when he and Lewis called special messengers and exchanged sizzling letters which were characterized by strong rhetorical and theatrical flavor. . . . Each advised and warned the other and each sniffed at the advice and warning. . . . Green once again gave Lewis the option of sticking with or leaving the A. F. of L. . . . Lewis invited Green to "return to the union that suckled you," having in mind Green's membership in the United Mine Workers Union. . . . Green brushed aside this suggestion just as he disregarded Lewis's warning that self-destruction awaited Green if he persisted in the attempt to cast out the industrial unions from the A. F. of L. . . .

Green, backed by the executive council of the A. F. of L., regaining his tone of command, told Lewis that he persisted his determination to divide the forces of labor, "I will still continue to protect and preserve our common heritage, the American Federation of Labor. You, alone, can determine whether you will remain with or leave the American Federation of Labor." . . . Green repating that Lewis had made it impossible for the A. F. of L. to "unite and solidify" its forces to organize the steel industry said that the steel manufacturers "may get some consolation out of that fact," but assured Lewis that the A.F. of L. would not be a part of such action. . . .

As if placing the United Mine Workers in the position of an ungrateful child, Green reminded Lewis of the fact that the A. F. of L. had created the U. M. W. and saved it with a contribution of \$500,000 in 1927 when the Jacksonville wage agreement broke down followed by large-scale desertions from the ranks of the U. M. W. . . . In his "Dear Bill" letter to Green, Lewis retorted that the U. M. W. had declared itself "for a definite policy and that it calls upon its loyal sons for support of

that policy." . . . And Lewis proceeded to throw a barrage of phrases at Green, attacking him for his "inane ineptitude" because of his opposition to the industrial union movement. . . . But, showing a spirit of grace, Lewis held forth a chance of salvation for Mr. Green in the event the latter should have developed a penitential mood, which he didn't. . . .

Lewis had told Green that if "rather than court obloquy by dwelling" among adversaries of the U. M. W. he would return to the fold "an honored seat at the council table awaits you." . . . Lewis was disgusted with the Green statement that the A. F. of L. would play the role of a mere spectator rather than a fighter in

connection with the campaign to organize the steel industry. He even seemed to think Green was seeking shelter behind skirts. . . . "It is inconceivable that you intend doing what your statement implies—that is, to sit with the women under an awning on the hill-top while the steel workers in the valley struggle in the dust and agony of industrial warfare." . . .

Lewis's love of figures of speech perhaps accounts for this unique picturization of a struggle which he appears anxious to invite . . . or does he? . . .

The agreement drawn up between Lewis and the Amalgamated association officers provides for a steel workers' organization committee, the committee to be named



by Lewis and given power to manage the campaign to organize 414,000 workers in the steel industry. . . . It is a huge undertaking indeed which, marked by failure repeatedly in the past, many doubt will accomplish anything like the ambitious claims of its sponsors. . . . The steel industry apparently is less susceptible to industrial unionization than ever before, as it is a form of unionization that appeals chiefly to unskilled workers. . . . Thanks to its rapid progress in technological development, the industry, as pointed out by Charles R. Hook, president, American Rolling Mill Co., in his recent paper before the American Iron and Steel Institute, has seen its unskilled workmen decline to approximately

5 per cent of the total workers. . . . Top wages, constantly improving working conditions, vacations with pay, real collective bargaining under employee representation plans also would appear to constitute some of the barriers to unionization. . . . Yet the C. I. O. looks upon these organizations as ready-made units to be absorbed into one big industrial union. . . .

The policy and organizing committee to be named by Lewis, under the terms of the agreement, will include two members of the Amalgamated association. . . . The committee and officers of the Amalgamated association, the agreement provides, "shall have exclusive power to deal with the steel companies in order to reach agree-

ments, but this shall not abridge the rights of the Amalgamated Association in the execution of current wage agreements." . . . This "concession" to the Amalgamated, evidently a sop to indicate it will still retain a degree of jurisdiction, is pretty much submerged by a provision that immediately follows. . . . This provision binds the Amalgamated association "not to take any action affecting the organizing campaign without first consulting and obtaining the sanction of the chairman of the committee." . . .

Having in mind the raising of money, the agreement authorizes the Steel Workers' Organizing Committee to establish advisory committees, consisting of representatives of labor organization who are given the privilege of contributing funds to prosecute the campaign. . . . The C. I. O. binds itself to 'contribute such sums of money, up to \$500,000, as conditions of the organization campaign warrant,' the Steel Workers' Organizing Committee secretary-treasurer being given charge of disbursement of the funds subject to rules of the committee. . . . The committee is also given power to grant dispensation from the payment of initiation fees to persons joining the Amalgamated association, clearly an inducement to get members who may be reluctant to pay the price of joining. . . . Dues are fixed at \$1 monthly per member. . . . The campaign may be terminated by joint action of the Steel Workers' Organizing Committee and the C. I. O. . . . Signing the agreement for the C. I. O., were Lewis, president of the United Mine Workers of America; John Brophy, director; Philip Murray, vice-president, United Mine Workers, and Thomas Kennedy, secretary-treasurer, United Mine Workers.

Laws for Regulation of Hours and Wages Urged

Demands for constitutional changes to permit Congress and states to regulate labor conditions in industry were seen growing in intensity as Representative Pettengill of Indiana prepared a constitutional amendment legalizing state legislation with respect to maximum hours and minimum wages for all classes of workers.

Similar efforts are expected to provide a storm center for one or both of national political conventions. Representative Fish has introduced a resolution calling for a constitutional amendment authorizing states to fix minimum wages

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for women and minors in industry. Representative Martin, Colorado, would give Congress outright power to regulate hours, wages, trade practices, prices and production throughout industry. Representative Pettingill would curb power of courts to pass on laws.

Revised Simplified Practice Recommendations

Revised simplified practices for the metal lath and tinned steel ice cream can industries have been accorded the required degree of acceptance and will become effective July 1, it has been announced by the Bureau of Standards. The re-

visions for the metal lath industry cover certain additions and eliminations to meet current needs. The revised recommendation will be identified as "Simplified Practice Recommendation R3-36, Metal Lath (Expanded and Sheet)."

The recommendation for the ice cream can industry was proposed by the International Association of Ice Cream Manufacturers and is known as Simplified Practice Recommendation R164-36, and contains a simplified list of sizes and varieties of cans which will care for more than 90 per cent of the normal demand for this commodity.

Until printed copies are available, mimeographed copies of the recommendations may be obtained

without charge from the Division of Simplified Practice, National Bureau of Standards, Washington.

Hearings to Be Held on Tin Plate Case

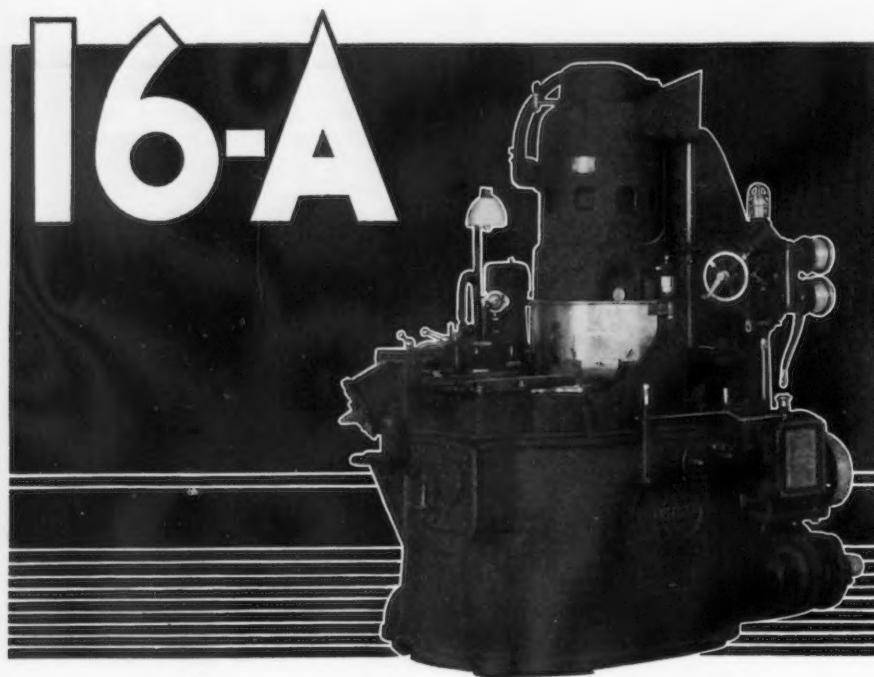
The Federal Trade Commission has announced that hearings will begin on Wednesday of the present week at Wheeling, W. Va., in connection with its complaint against tin plate makers who are charged with refusing to sell stock plate to jobbers and small manufacturers of cans and other containers. Tin plate manufacturers have flatly denied the charges.

On Friday the hearing will be transferred to Pittsburgh. John W. Norwood is the trial examiner in the proceedings. The FTC attorneys are Everett F. Haycraft and Reuben J. Martin.

Tax Bill Is Passed by Senate

Providing a 7 per cent surtax on undivided corporation profits, and from a 15½ to an 18 per cent tax on corporate income, the \$829,000,000 tax bill passed by the Senate by a 38 to 24 vote is a challenge to the Administration's House bill, with its high levies to compel surplus distribution. The House bill, a hodgepodge, was bitterly attacked before the Senate Finance Committee by industrial and other interests who found sympathetic response.

The upshot was the Senate bill, which, bad as it is, is much more acceptable to industry than is the House bill. But in view of Administration insistence upon steeply graduated taxes on corporation earnings, running as high as 42½ per cent, with a 4 per cent individual income tax on dividends, it is expected that House conferees will stand fast for its principle if not for its specific provisions. It was largely because of the declaration of Majority Leader Robinson that the House and Senate conferees would have a "wide latitude" that Senator Black of Alabama withdrew the Administration's substitute which he and Senator La Follette of Wisconsin had urged during the sharp debate over the bill in the Senate. It was clear, however, that the Administration substitute would have been overwhelmingly defeated had it been brought to a vote in the Senate. A number of Senators are adamant against the Administration bill. This indicates that the conference, which is seeking to reach an agreement during the seven-day recess begun yesterday, will likely reach



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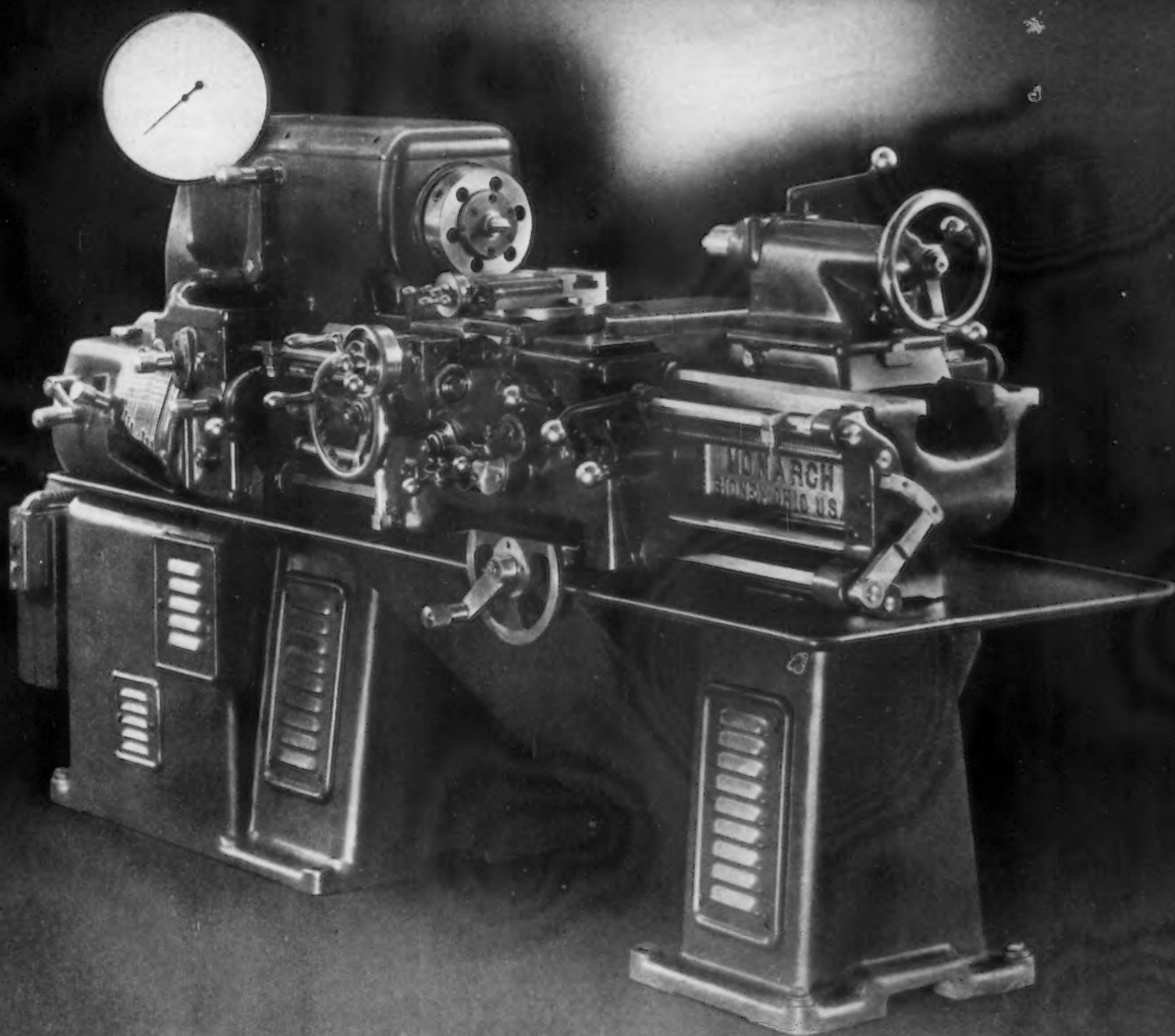
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MONARCH ANNOUNCES THE NEW HYDRAULIC MULTI-SPEED LATHE

MONARCH has done the unusual again—has applied Hydraulic automatic speed changing to the spindles of lathes for the first time! This new drive has already been successfully used on both tool room and production lathes in many industrial plants and has made really tremendous savings.

Regardless of the number of spindle speeds you may desire—100 . . . 500 . . . 1000 or more!—you can secure them instantly

on this new Monarch machine. Spindle speed changes are made automatically or manually at the apron of the lathe, the operator's working position. (A tachometer indicates the speed at which the spindle is turning—and can also show the surface cutting speed on the various diameters being turned.)

The new Monarch Hydraulic Multi-Speed Lathe can be used on production jobs where the diameter being turned changes constantly or frequently. It is ideal for use as follows . . .

- On all lathes used for facing work.
- On all lathes where multiple diameters are turned, where a saving of time will be made by automatically changing spindle speeds to maintain the desired surface cutting speed on all diameters.
- On Engine lathes and Tool Room lathes where a wide variety of diameters are being turned and where an infinite range of spindle speeds . . . instantly available to the operator from his normal working position at the apron . . . will lessen his fatigue and result in a bigger day's work.

● Write for the Hydraulic Multi-Speed Lathe Bulletin. Monarch Machine Tool Company, Sidney, Ohio, U. S. A.

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some sort of compromise if its report is to be accepted.

The Senate bill, unlike the House bill, carries a number of import taxes on fish and vegetable oils, and removes the exemption hitherto applying to imported palm oil when used in the manufacture of tin plate. Under the Senate bill this oil, used as a bath in tin plate

production, is made subject to an import tax of 3c. per lb., despite protests from tin plate and tin can producers. Inasmuch as the House expressed opposition to such excise taxes there is a hope that the Senate oil taxes will be removed. There is by no means a certainty, however, that this will be done. Senator Davis of Pennsylvania has

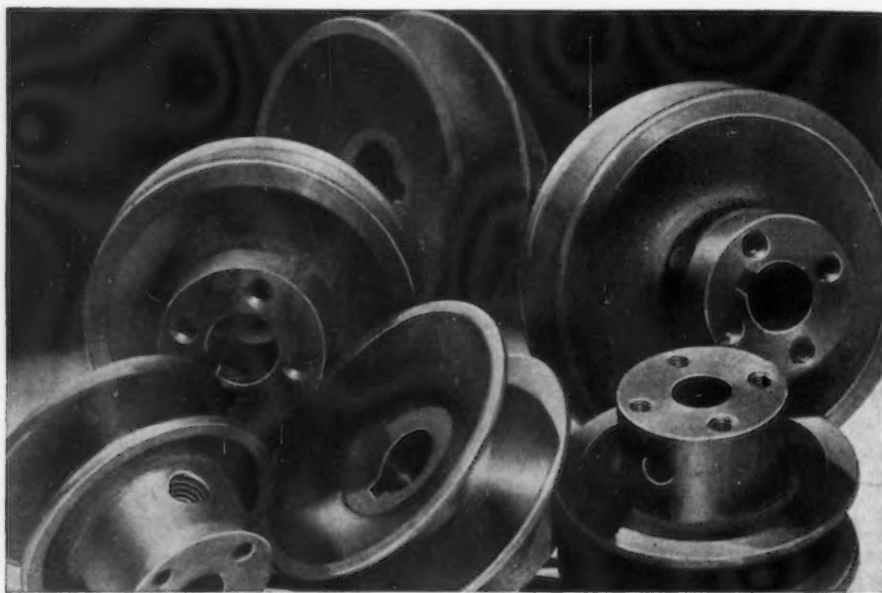
prepared an amendment exempting from the tax the first domestic processing of the first 8000 tons of palm oil which to the satisfaction of the Commissioner of Internal Revenue was used in the manufacture of tin plate. The amendment was not formally offered. Other amendments voted down included those of Senator Adams of Colorado to exempt from the 7 per cent surtax on undivided profits money spent for plant equipment and expansion, for plants destroyed by catastrophes and to pay debts. The proposal to exempt money used for plant equipment and expansion had been urged by Jesse Jones, chairman of the Reconstruction Finance Corp.

Congress to Remain in Session Next Week

Prospects of Congress remaining in session next week rather than adjourning on June 15 or 16 as leaders had previously proposed were seen in a statement of Speaker Bankhead of the House, following a conference he and other leaders held with President Roosevelt Monday. Bankhead said the revised Guffy-Vinson coal bill would be considered by the House when it meets next week and that the remainder of the week will be given over to conference reports and minor bills. The Guffy-Vinson bill has been reported to the House but still remains in the Senate Committee on Interstate Commerce without action. Its passage, therefore, is considered doubtful unless it is subjected to White House pressure, a thing held to be entirely conceivable in view of insistence of organized labor that it be passed before adjournment. Bankhead said a "desperate effort" would be made to adjourn at the end of next week. He announced that the general legislative situation was discussed at the White House conference.

Among the bills which Mr. Bankhead stated have good chance of passage before adjournment are the anti-lobbying and the Patman-Robinson anti-price discrimination measures.

House and Senate conferees have agreed on the Patman-Robinson bill. As agreed upon, it includes the so-called Borah-Van Nuys bill which amends Sec. 2 of the Clayton anti-trust act to prohibit so-called fictitious brokerage allowances, advertising discounts and other so-called rebates and provides for a criminal penalty and a fine up to \$5,000 and imprisonment for its violation. It permits differentials which make due allowance for variations in the



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cost of manufacture, sale or delivery resulting from the differing method or quantities. It also permits the lowering of prices made in good faith in order to meet competition.

The conferees accepted the Senate provision setting up a yardstick authorizing the Federal Trade Commission to fix quantity discounts where the FTC finds "that available purchasers in greater quantities are so few as to render differentials on account thereof unjustly discriminatory or promotive of monopoly."

The conferees knocked out the amendment of Senator Vandenberg which exempted manufacturers from the provisions of the bill with respect to the purchase of their supplies.

How the A. F. of L. Lobbies

The high pressure activities of the American Federation of Labor to force action of the Walsh-Healey Government contracts bill at the present session of Congress were laid before the Senate last Saturday by Senator Hastings of Delaware, as a subject for study at the hands of the Black Lobby Investigating Committee. But, as might well have been expected, the potato was too hot to handle and it was dropped. Senator Hastings inserted into the Congressional Record, a telegram from President Green of the American Federation of Labor which was addressed to members of the House Committee on Judiciary and bluntly informed the members of a meeting of the committee, headed by Representative Sumners, to be present at the meeting and that unless they were there their absence "will be construed as opposition to the measure and as being unfriendly to labor." Senate Majority Leader Robinson ducked the matter by saying that he doubted "the propriety of the Senate questioning the proceedings of a committee of the body at the other end of the Capitol." That, he added, was all he had to say on the subject "at this time."

Green's edict to members of the Judiciary Committee follows:

"Chairman Sumners advises that a meeting of the House Judiciary Committee will be held tomorrow morning 10 o'clock, for the purpose of taking action upon this measure. Labor is tremendously interested in this bill and firmly expects it to be enacted into law before Congress adjourns. For this reason I respectfully urge you to be present at the meeting of the Judiciary Committee tomorrow morning as herein stated. Your absence from the meeting will be construed as opposition to the measure and as being un-

friendly to labor. Our representative will be present at tomorrow morning's meeting. Do not fail us. Be present.

(Signed) William Green,
President, American Federation of Labor."

Labor Board Acts Against Metal Working Companies

Orders have been issued by the National Labor Relations Board against the Columbia Radiator Co., manufacturer of radiators and boilers in Versailles Township, Pa., and the Foster Brothers Mfg. Co., manufacturer of springs and beds at Baltimore. The former has been ordered to cease and de-

sist from refusing to bargain collectively with Local 79, International Brotherhood of Foundry Employees, to reinstate six members of the local whom the company discharged for union activity, according to the board, and to reemploy as soon as possible other workers "who were let go during a dispute at the plant last January."

The Foster Brothers Mfg. Co. was ordered to end "interference with the affairs of Local 20137, a Federal labor union, and to reinstate 10 workers with back pay since the date of their discharges in January of this year.

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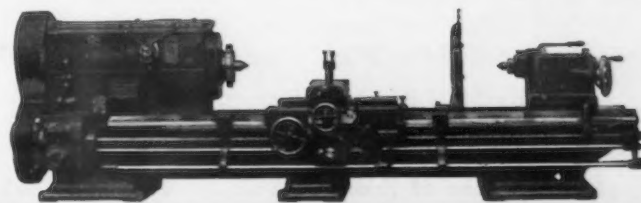
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General Electric To Celebrate 50th Anniversary of Schenectady Plant

THOMAS A. EDISON took title to two abandoned shops in Schenectady and moved the Edison Machine Works from Goerck Street, New York, to that city, 50 years ago June 14. Thus was laid the foundation for an industry which has grown into the present General Electric Co. In recognition of this, the Schenectady Chamber of Commerce has planned a celebration for June 12 and 13 commemorating this half century of electrical progress.

A formal dinner for notables from all parts of the country, including the Edison pioneers, will be held June 12. The directors of the General Electric Co. have decided to hold their monthly meeting in that city, rather than in New York, so that its members may attend. Likewise, Gerard Swope,

president of the company, has called a meeting of the company's advisory committee for Schenectady that day, which will bring all vice-presidents and other executive officers. Owen D. Young, chairman of the board; Public Service Commissioner George R. Lunn and probably Charles A. Edison will be the speakers.

Mr. Young proposes to tell of the growth and importance of the electrical industry, Dr. Lunn, of the growth of the city along with the industry, and Mr. Edison, of his father's early pioneering work. It is expected that Henry Ford and Harvey Firestone will also attend, the only two survivors of the once famous quartet of Edison, Burroughs, Ford and Firestone, who spent their vacations together.

All predictions indicate the dinner on Friday will be the largest and most important ever held in Schenectady and the entire celebration will be the gayest this city has experienced since the signing of the armistice. The speeches at the dinner and at the flag raising will be broadcast by WGY and General Electric's two short wave stations, W2XAD and W2XAF.

From the two small shops and 11½ acres of ground acquired by Edison in 1886 there has grown a plant of 273 buildings, with a floor space of 6,550,000 sq. ft., covering a plot of 674 acres; from 300 employees to 12,000 with a peak of more than 24,000 in 1929, and a payroll of more than \$1,000,000 a week.

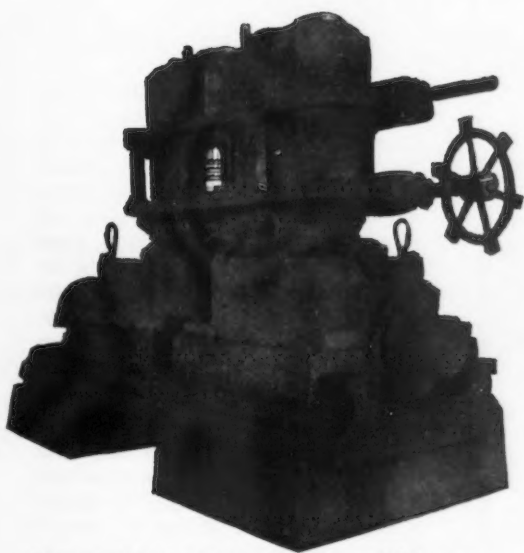
General Electric today has factories in Lynn and Pittsfield, Mass., Bridgeport, Conn., Philadelphia, Bloomfield, N. J., Erie, Pa., Fort Wayne, Ind., and Oakland, Cal., and sales offices throughout the world and does a business of \$1,000,000 a working day.

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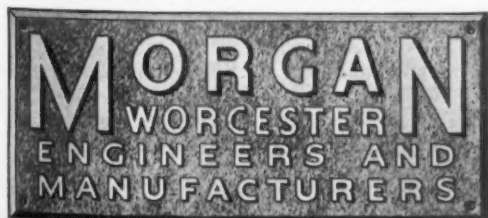


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May we recall to your mind another group of precision-built Morgan Machines—Morgan Edging Mills. These mills are designed for accurate edging of flat sections, economically.

Rolls are firmly mounted between top and bottom bearings and are driven through vertical jack shafts. This arrangement provides ample gear capacity to permit the mill to do *some real work*.

Special design gives strength to every unit *and allows roll changes to be made simply*. All gear shafts are mounted in heavy duty roller bearings. In fact, every precaution has been taken to insure accurate output with low maintenance and operating costs.

Morgan Edging Mills are built in all sizes to meet required mill conditions.

MORGAN CONSTRUCTION COMPANY
Worcester, Massachusetts, U. S. A.

EDGING *Mills*



Paper Presented at the
Twentieth Annual Meeting
of the
American Gear Manufacturers Association
by W. E. Sykes

Causes and Corrections

In this informative paper the author explains the difference between *noise* and *sound*, states the causes of gear noise, and analyzes the requirements of design, workmanship, lubrication and other factors that must be met to prevent or overcome noise.

The author has had over a quarter of a century of experience in the design, manufacture and operation of gearing and for a number of years has given much study to the subject discussed in the paper.

We have a small quantity of this paper and as long as our supply lasts we shall be glad to send a copy free to those who request it on their company letterhead.

FARREL-BIRMINGHAM COMPANY, INC.
333 Vulcan St., Buffalo, N. Y.

Republic Purchases
Canton Tin Plate

REPUBLIC Steel Corp., Cleveland, has purchased the plant of the Canton Tin Plate Corp., Canton, Ohio, the sale being subject to the formal approval of the two corporations. The Canton property is being sold for an un-

named cash consideration. The Canton Tin Plate plant consists of nine black plate mills, four tandem, 2-high, 3-stand cold-finishing mills, 9 sheet and 9 pair furnaces and 8 box annealing furnaces and auxiliary equipment. The plant has an annual capacity of 36,000 tons of black plate for tinning and 22,300 tons of coke tin plate.

The Canton Tin Plate Corp. was

organized in 1930 by W. H. Davey, its president, and has an outstanding capital stock of \$250,000 in common and \$150,000 in preferred. Mr. Davey is also president of the W. H. Davey Steel Co., Cleveland, which manufactures hot-rolled annealed sheets and black plate.

Coal Tar Plant to
Be Built in Cleveland

THE Reilly Tar & Chemical Co., Indianapolis, producer of coal tar products, will erect a plant in the Cuyahoga Valley, Cleveland, where it has acquired a 10-acre site adjoining the Republic Steel Corp.'s Corrigan, McKinney works. The project calls for ultimate plant expenditures in excess of \$200,000. The Reilly company has contracted with the Republic corporation to take its entire output of coal tar from the Republic coke ovens in the Cleveland district for a period of 20 years. The Republic corporation has purchased 33 acres adjoining its present site and the Reilly site for possible future expansion of steel producing facilities.

Blast Furnace and
Coke Oven Group
Meets

THE spring meeting of the Eastern States Blast Furnace and Coke Oven Association was held at the Pittsburgh Field Club, Pittsburgh, on June 5. At the coke oven session Dr. Vanderveer Vorhis, of Standard Oil Co. of Indiana, presented a paper on "Anti-Oxidant Process of Treating Motor Benzol," and H. W. Wright, Solvay Engineering Corp., gave a paper on the "New Solvay Oven."

At the blast furnace session subjects discussed were the cracking of blast furnace shells, cause and method of repair; piglets, and explosion in tunnels when drafting furnaces. F. T. Moran, superintendent of coke plant, Republic Steel Corp., Warren division, Warren, Ohio, was elected president of the Association; P. F. Dolan, superintendent of blast furnaces, Bethlehem Steel Co., Sparrows Point, Md., was elected vice-president, and F. D. Schreiber, assistant general superintendent, Davison Coke & Iron Co., Neville Island, Pittsburgh, was elected secretary-treasurer.

Only an
Unbreakable
Alloy Steel Back can
assure full life
from a High Speed Steel Edge.

Because it is *hard* and *wear-resisting*, genuine High Speed Steel makes the finest cutting edge—fastest cutting, longest lived. But because it is hard, high speed steel is relatively brittle—though best for the teeth, it is ill suited as a backing for the teeth, since the backing must be non-brittle to withstand the strains and shocks of tensioning, reversing, and feed load, without breaking. Only MARVEL High-Speed-Edge offers the "perfect ideal"—the only hack saw blade with genuine high speed steel tooth edge integrally welded to a tough, non-brittle, non-breakable, chrome-vanadium steel back or body. Only by standardising on MARVEL can you be sure to get full life and genuine high speed efficiency.



High-Speed-Edge
HACK SAW BLADES

ARMSTRONG-BLUM MFG. CO.

"The Hack-Saw People"

349 N. Francisco Ave.

CHICAGO, U. S. A.



Middletown Pays Impressive Tribute to George M. Verity

ONE of the most impressive tributes yet paid to a living industrialist was that rendered Saturday, June 6, by the citizens of Middletown, Ohio, to George M. Verity, chairman of the American Rolling Mill Co.

The event and the program were planned entirely by civic organizations of Middletown. Their purpose was to emphasize the con-

Ceremonies were conducted after the parade in Sunset Park, where addresses were made by former Governor James M. Cox and John H. Van Deventer, editor of THE IRON AGE, and a response of ap-

preciation was delivered by Mr. Verity.

Governor Cox paid high tribute to the cooperative spirit which has manifested itself in the Miami Valley and which has been so well fostered by Mr. Verity.

"Here we have witnessed the great spectacle of industrial peace," said Mr. Cox. "Beginning north of Springfield, onward to Dayton, Middletown, Hamilton and Cincinnati—every one of these has



GEORGE M. VERITY

structive community value of Mr. Verity's able leadership and constant cooperation in all movements leading to civic betterments and neighborly good will.

While the occasion was intended primarily as a Middletown celebration, the entire southern Ohio district was represented in attendance and fully 25,000 people participated in the ceremonies. All of the city's stores and manufacturing establishments were closed for the day.

An inspiring parade in which were several thousand representatives of various Middletown civic organizations was accompanied by a series of symbolic floats, artistically decorated and depicting various phases of community activities. In the parade also marched various groups of Armco's Middletown employees, in "classes" ranging from 35 years to 10 years of continuous service.

PRICE VS. COST

You wouldn't buy a rowboat
For a trans-Atlantic trip
Or a steamer
To fish in a duck-pond.

The best tool for the job
Is inevitably less costly
Than a cheaper one
Not so well suited.

MITCO cutting tools
Are not produced
To a price.
They are designed
To give
The lowest production cost
Per piece.

Including long life,
Accuracy,
Low maintenance,
Freedom from trouble
and REASONABLE price.

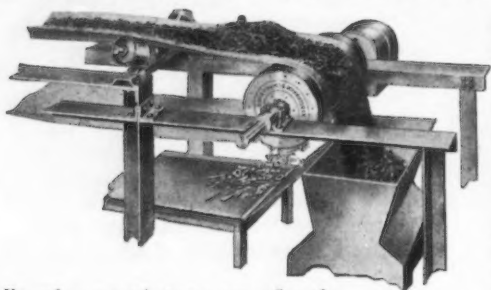
Why not have a
Michigan Tool Engineer
Discuss
YOUR tooling problems
With you
At no cost?

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Plaza 9030

There is a Michigan Tool Representative in your territory

IRON PROBLEMS SOLVED



No other manufacturer can offer the experience that is Dings. Since 1899 Dings Engineers have been solving separation problems. This experience has resulted in a line of High Intensity Separators that will extract the most weakly magnetic materials—even slate from coal or protect crushing and grinding equipment from the coarsest tramp iron.

Dings
High Intensity
MAGNETIC SEPARATION

Are YOU having trouble with iron? Dings Engineers can eliminate it!

Dings Engineers can effectively remove iron from your foundry sand, leaving it clean for reuse. They can remove iron or steel from brass borings or turnings, making them suitable for salvage and assuring great savings in tools when re-machining.

Iron in any form from the finest material to coarse tramp iron can be removed in the regular order of production.

Don't waste time and money because of iron troubles.

Come to Separation Headquarters.
DINGS MAGNETIC SEPARATOR CO.
727 Smith Street, Milwaukee, Wis.

Separation Headquarters Since 1899

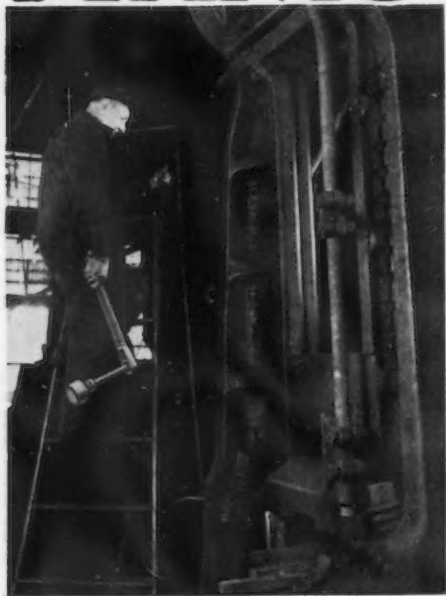
discarded the old ways of politics and politicians in its municipal government and the affairs of its schools. The unexcelled and unparalleled progress in this chain of cities is not a coincidence; it has been made possible by the spirit of leadership."

Governor Cox then proceeded to an appraisal of Mr. Verity's long and unostentatious but effective service to his community in many

varied civic activities. In concluding, he said:

"I could well elaborate on what has characterized the development of this community under the leadership of Mr. Verity. I hope, Mr. Verity, that you realize that few have lived to receive such an unaffected, sincere tribute as is paid to you, by the men, women and children of their respective communities."

ARMSTRONG



**SOCKETS...
WRENCHES**



... with the Drivelock

SAFE... sockets of ARMSTRONG WRENCHES cannot drop off... extension cannot pry or knock apart. Regardless of length or shape, every ARMSTRONG socket wrench assembly is a safe, rigid tool—a tool that meets industrial standard for strength.

Only ARMSTRONG Socket Wrenches have this patented Drivelock feature, where with a quarter turn the lock pin locks socket to driver, driver to ratchet, extension, to extension. For quality, safety and strength, standardize on "ARMSTRONG." ARMSTRONG Sockets come in 9 types. Double-Hex or Double-Square. In all sizes from tiniest Miniatures to largest Bridge Ratchets.

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

309 N. Francisco Ave. CHICAGO, U. S. A.
New York Sales Office—109 Lafayette St. San Francisco London

Mr. Van Deventer devoted his address to an appraisal of what Mr. Verity's career and personality have done for the industry of which he is a part. After describing the various phases of pioneering accomplishment in research, metallurgy, engineering, merchandising and employee relations, he said:

"Mr. Verity is a friendly man in the truest sense of the word, which denotes the desire to understand and to benefit his fellow man as well as to learn from him. That spirit of friendliness has not only embraced his fellow workers, the stockholders and the customers of Armco and his neighbors in the community, but has extended as well to his competitors. If proof of this were needed, it could be found in the signal honor conferred upon him last October by the American Iron and Steel Institute when it elected him honorary vice-president.

"If I were asked what single quality has been more responsible for George M. Verity's success, I would unhesitatingly say that it was this keen and friendly interest in people. Without this, he would never have developed the profound understanding of men and the ability to inspire them with those ideals of service which have made Armco what it is today."

Mr. Van Deventer also conveyed to Mr. Verity messages of appreciation from Charles M. Schwab, Myron C. Taylor, E. G. Grace, E. T. Weir, T. M. Girdler and L. E. Block, fellow executives in the steel industry, and also from F. A. Merrick, president Westinghouse Electric & Mfg. Co., on whose board Mr. Verity has served for many years.

In responding, Mr. Verity expressed deep appreciation of the honors that had been conferred upon him by his fellow citizens, but emphasized the fact that whatever success and accomplishment had been attained was due to the spirit of cooperation.

"The tribute you have so graciously paid me as a fellow citizen is more than any human can deserve," said he, "because one can do so very little of himself. It is the sympathetic cooperation of many men and women working together in a spirit of good will that makes for great accomplishment. It can be done in no other way."

A dinner at Hotel Manchester, Middletown, was tendered Mr. and Mrs. Verity on Saturday evening, by a committee representing a cross section of civic and industrial groups. Three hundred guests were present.

Latrobe Tool Buys Buckeye Drill

LATROBE TOOL MFG. CO., Latrobe, Pa., manufacturer of twist drills and reamers, recently announced the acquisition of the Buckeye Twist Drill Co., Alliance, Ohio. The Buckeye plant will continue to operate at Alliance, as a separate unit under the direction of A. A. Mulac, general manager, who has served as president of the Buckeye Twist Drill Co. for the past 20 years.

J. G. Eck will continue in charge of sales at the Alliance office under the direction of Harry J. Cogswell, president, Latrobe Tool Mfg. Co., whose headquarters is in Chicago. Latrobe Tool Mfg. Co. is a subsidiary of Whitman & Barnes, Inc.

Hot Dip Galvanizers' Committee to Meet

THE board of directors and the technical advisory committee of the American Hot Dip Galvanizers Association will meet in Pittsburgh on June 18.

In addition to the routine matters to come before the board, the technical advisory committee and technical director of research will discuss and consider the various comments and suggestions received in connection with the proposed revised standard specifications, so that as many of these proposed specifications as possible may be tentatively adopted by the association.

Engineer Receives Unusual Award

DRIVING at break-neck speeds of over 100 miles an hr., defying death on the treacherous curves in famous Decoration Day 500-mile speedway race at Indianapolis, demands cars that will stand a terrific strain.

Besides being the world's largest sport spectacle, automobile and accessory manufacturers have always considered this grueling event the testing laboratory for automotive development out of which has been brought many of the superfine improvements that we enjoy in pleasure cars today.

E. C. Atkins & Co., saw manufacturers, Indianapolis, who are

A NEW COST SAVER

... Particularly Advantageous

for rapid
CLIMB MILLING
with Formed
Cutters in Steel

Automatic Backlash Eliminator on Table Feed Screw automatically released during fast table travel.



Your work
milled on this
modern Electrically Controlled unit may show surprising savings. Why not investigate now?



Brown & Sharpe Mfg. Co.
Providence, R. I., U.S.A.

The new *Electrically Controlled* **BROWN & SHARPE** **No. 12 PLAIN MILLING MACHINE**

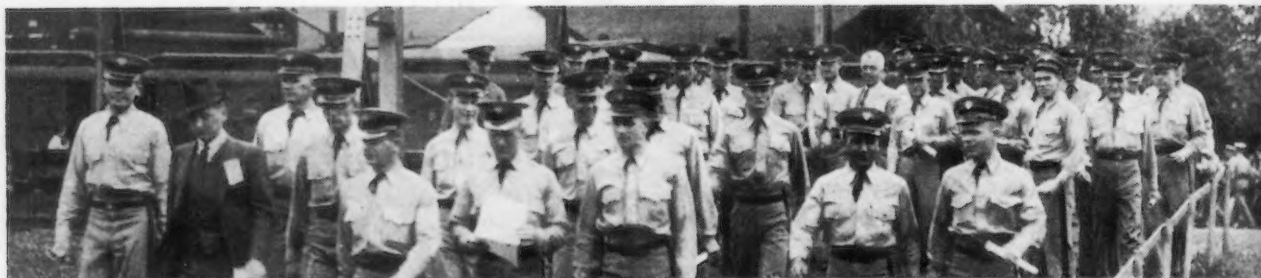
well known for their heat treatment of metal, have been called upon by many of the most famous drivers in most of the 24 races for consultation and heat treatment of the vital parts of their racers.

The advice given to the drivers and race officials by Atkins and the thorough heat treatment of car parts done in the Atkins factory and precise knowledge of metal problems having to do with the cars has been so successful that this year the contest board of the American Automobile Association has officially appointed W. R. Chapin, research engineer of Atkins, speedway metallurgist.

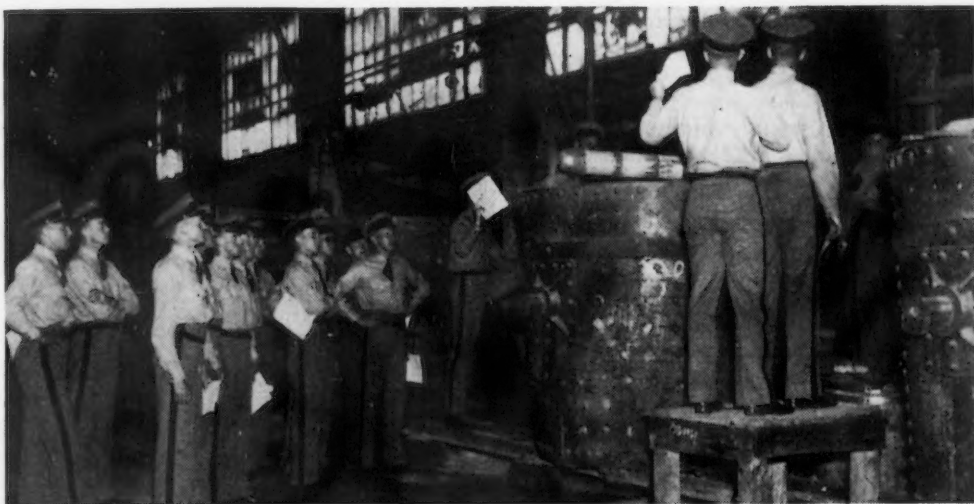
British Steel Masters Entertained At Lunch

THE directors of the United States Steel Corp. gave a luncheon last week at the offices of the corporation in honor of the Right Hon., the Earl of Dudley, Sir Andrew Duncan and I. F. L. Elliot, representatives of the British steel industry, who arrived in New York on the Queen Mary.

Myron C. Taylor, chairman of the board of the Steel corporation, presided at the luncheon which was attended by 125 business leaders.



THE 280 members of this years graduating class of the United States Military Academy, West Point, N. Y., visited the Watervliet, N. Y., plant of the Ludlum Steel Co. on June 1. A group of them are shown here viewing the pre-heating of ladles before receiving a heat of section valve steel from a 12-ton electric furnace. The cadets witnessed the rolling of steel for automobile valves, the making of certain types of tool steel in the hammer shop and the pouring of a heat from a 12-ton electric furnace.



... Rail mill may run until June 20.

... Finished steel bookings not yet improving.

BIRMINGHAM, June 9. — Last week the steel market did not respond to the new prices announced for the third quarter, which will bring an increase of \$2 a ton on bars, plates, shapes, sheets and other products. Bookings of spot business were only fair. Bars, plates and shapes continue the most active, while sheets and wire products still lag. May steel shipments were on a par with those of April, omitting rails. There is no let-up in production and shipments. Contract tonnage already on the books is maintaining production at a steady rate.

The pig iron market is dull, as current requirements are largely booked, and melters have not yet begun to buy for the next quarter. The second quarter price of \$15.50 has been extended to third quarter. Shipments in May were larger than in April and further improvement

is expected later this month.

Furnace operations are without change. Twelve blast furnaces and 15 open-hearths continue in production. The Ensley rail mill may run until June 20 or even longer, instead of closing on June 15 as previously planned. This will also postpone the curtailment of other

operations at the Ensley works.

All ore mining operations of the Tennessee Coal, Iron & Railroad Co. have been stopped by a strike, which began June 1. There is a large stock of ore on hand and furnace operations will not be affected. Only part of the mining force went out on strike.

EXPERIENCE makes **SPRINGS**

Send your "Springquiries"

to



Quality Springs
since 1845

DUNBAR BROS. CO.
BRISTOL CONNECTICUT

PRESSED STEEL!



Industry's . . . **LIGHTWEIGHT CHAMPION!**

Under the expert handling of Transue engineers and production men, PRESSED STEEL has proved its ability to "take it" . . . to stay within the weight limit without sacrificing strength . . . and to lick the customer's production expense by eliminating machining.

Transue would like to match PRESSED STEEL against YOUR TOUGHEST PROBLEM.

Call one of our sales offices below or the plant at Alliance—and we will show you a neat record of "knockout" jobs.

TRANSUE & WILLIAMS
ALLIANCE, OHIO



TRANSUE & WILLIAMS
DESIGNERS AND MANUFACTURERS OF
DEEP DRAWN STAMPINGS

SALES OFFICES: NEW YORK - PHILADELPHIA - CHICAGO - DETROIT - INDIANAPOLIS - CLEVELAND



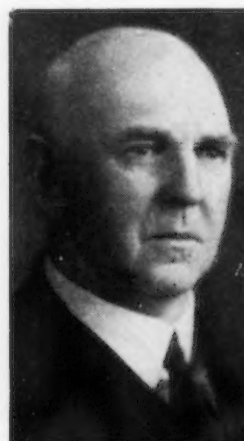
PERSONALS

EARL M. RICHARDS, assistant to the vice-president in charge of operations of Republic Steel Corp., has been elected vice-president of the American Management Association in charge of the production division. He was graduated from Bucknell University in 1913 with the degree of bachelor of science in electrical engineering. During the War he served as technical adviser for the Fuel Conservation Committee of Western Pennsylvania and as special engineer for the United States Railroad Commission. In recognition of his war-time services he was given an honorary degree of electrical engineer by Bucknell University in 1919 and in 1934 he was elected to the board of trustees.

Mr. Richards was affiliated with the Westinghouse Airbrake Co. from 1913 to 1919 as assistant to the chief engineer and later as assistant to the manager of engineering. From 1920 to 1925 he served as a consulting electrical and mechanical engineer in the East and in the latter year went with the Jones & Laughlin Steel Corp. as chief industrial engineer of its Aliquippa Works. In 1930 he became chief industrial engineer of the Republic Steel Corp. and sub-



E. M. RICHARDS



E. P. BURRELL



J. F. ROGERS

sidiaries and in 1935 was made assistant to the vice-president in charge of operations. He is a member of the American Iron and Steel Institute, American Society of Mechanical Engineers, American Institute of Electrical Engineers, Iron and Steel Electrical Engineers and of the American Management Association, being also a director of the latter organization. He served for two terms as president of the Youngstown section of the American Society of Mechanical Engineers. He is co-author of a 300-page volume covering some of the investigations he made during

his connection with the United States Railroad Administration and articles written by him have appeared in technical publications in this country and Europe.

♦ ♦ ♦

E. P. BURRELL, director of engineering, Warner & Swasey Co., Cleveland, has been given an honorary degree of doctor of engineering, by Case School of Applied Science, Cleveland. Dr. Burrell is known throughout the scientific world for his work in designing and building telescopes and observatories and has done important work in the design of turret lathes. The 82-in. McDonald reflecting telescope now being erected in western Texas for the University of Texas is his latest achievement in this field. He is credited with the development of the hollow hexagon line of turret lathes made by the Warner & Swasey Co. and has perfected various improvements that have added to the adaptability and efficiency of turret lathes.

Dr. Burrell was graduated from Cornell University in 1898 with a degree of mechanical engineer in electrical engineering and the following year received a master's degree in mechanical engineering. He has been associated with the Warner & Swasey Co. for the greater part of his business life. He is a member of the American Society of Mechanical Engineers and the Cleveland Engineering Society.

♦ ♦ ♦

J. FREDERICK ROGERS, vice-president of Beals, McCarthy & Rogers, Inc., Buffalo, has been elected a director of the Manufacturers & Traders Trust Co. of Buffalo. He is vice-president also of the Amer-

The Products

The Plant

The Question

The Name

The Location




Do you use such products and do you appreciate quality, prompt deliveries, attention, and perfect packaging?

If so, write

CLARK BROS BOLT CO.

CLARK STREET
MILLDALE, CONNECTICUT

ican Steel Warehouse Association and a member of the American Iron and Steel Institute.

♦ ♦ ♦

JULIUS E. GRAF, formerly chief engineer, American Sheet & Tin Plate Co., has been appointed assistant chief engineer, Carnegie-



J. E. GRAF

Illinois Steel Corp., following the recent consolidation.

♦ ♦ ♦

CHARLES J. STILWELL, vice-president Warner & Swasey Co., Cleveland, sailed June 5 on a business trip to Europe. He will spend a month or six weeks visiting various countries.

♦ ♦ ♦

E. S. FITZSIMMONS has been elected vice-president of the Flannery Bolt Co., Bridgeville, Pa.

♦ ♦ ♦

E. A. PURNELL has been made vice-president in charge of sales of the General Fireproofing Co., Youngstown. **WALTER BENDER** has become vice-president in charge of operations and **GEORGE R. FARRELL**, vice-president in charge of purchases. **L. B. MCCARTHY** has been made general plant superintendent, **A. J. BALL**, general sales manager furniture division and **D. W. MCCLURE**, general sales manager contract division.

♦ ♦ ♦

W. S. WILSON, heretofore chief engineer of the steel division of the Dominion Steel & Coal Corp., Ltd., Sydney, Nova Scotia, has been appointed chief engineer of the company, succeeding the late **Karl H. Marsh**. **J. A. MCLEOD**, until recently chief draftsman, has been made chief engineer, steel division.

♦ ♦ ♦

GOTTFRID OLSON has been appointed consulting foundry engineer for the National Founders

Association, Chicago. His work will cover foundry practice, production problems, equipment, apprenticeship, safety and sanitation. He received his engineering degree in Sweden and has worked in this country some 20 years as molder, foreman and superintendent.

♦ ♦ ♦

HARRY S. GOULD has become vice-president and general manager of the Pyroneel Co., Inc., manufacturer of incinerators, a division of the J. C. Rochester & Co., New York.

♦ ♦ ♦

HARRY A. SCHWARTZ, of the National Malleable & Steel Castings Co., has been given the honorary degree of doctor of engineering by Case School of Applied Science.

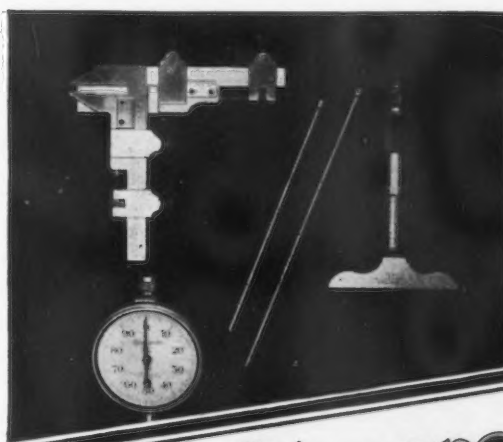
A. C. COOK, formerly New York district sales manager for the Warner & Swasey Co., Cleveland, has been appointed district sales manager for the Cumberland Steel Co., with office at 30 Church Street, New York.

♦ ♦ ♦

G. W. SCOTT has been elected chairman of the Montreal chapter of the American Society for Metals. Other officers elected include **BERNARD COLLITT**, vice-chairman; **A. T. SARGENT**, treasurer, and **B. W. BROWNRIGG**, secretary.

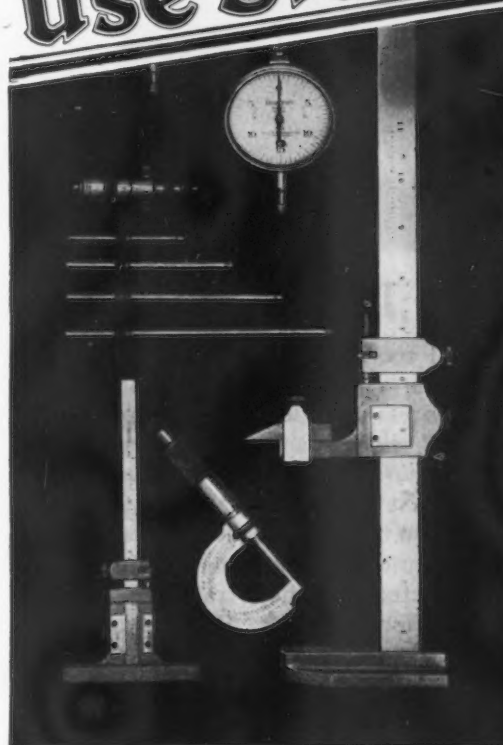
♦ ♦ ♦

A. B. PARSONS, secretary of the American Institute of Mining and Metallurgical Engineers, has been



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EQUIPMENT NEED**

Use Starrett Tools



It certainly pays to standardize on Starrett when you buy precision tools, dial indicators, or hacksaws. Your favorite distributor or mill supply house carries a complete stock so you always know just where to get what you want when you want it. And as every tool user and buyer knows, there's no better way to make sure of lasting accuracy and dependability than to insist on getting Starrett Tools. The new revised edition of Starrett Catalog No. 25 AA and the special Starrett Dial Indicator Catalog illustrate and describe the complete line of Starrett Tools.

May we send copies?

THE L. S. STARRETT CO.
World's Greatest Toolmakers
Manufacturers of Hacksaws Unexcelled
Steel Tapes—Standard for Accuracy
Athol, Mass., U. S. A.

BUY THROUGH YOUR DISTRIBUTOR

awarded the honorary degree of doctor of engineering by the South Dakota School of Mines, in recognition of "his contributions as editor, journalist and author to the literature of the mining industry and his work for the advancement of the profession of engineering."

♦ ♦ ♦

J. F. CALEF, Automatic Electric Co., has been elected chairman of the Chicago chapter of the American Society for Metals. Other officers elected are E. GAMMETER, Edison General Electric Appliance Co., vice-chairman; and K. H. HOBBIE, Driver-Harris Co., secretary-treasurer.

♦ ♦ ♦

WILLIAM MCMAKIN, formerly of the New York office of the Metallizing Engineering Co., has been made sales manager at Baltimore where a new office has been opened at 5444 Frederick Avenue. W. B. MEYER, formerly of the Chicago office of this company, has been sent to St. Louis as sales manager where he has opened an office at 3640 Shaw Boulevard. L. R. BERKELEY, formerly of the Una Welding Co., has been named sales



J. CARLISLE MACDONALD, whose appointment as assistant to Myron C. Taylor, chairman of the board of the United States Steel Corp., was announced in these columns last week. He will be engaged in public relations work.

representative at Cleveland and E. R. HAUSER, formerly of the Electro

Plate Co., Montgomery, Ala., has been named sales representative in Alabama north of Montgomery.

♦ ♦ ♦

E. F. BLANK, personnel director, Jones & Laughlin Steel Corp., Pittsburgh, will serve as general chairman of a forum meeting of about 500 industrial supervisors and executives at Conneaut Lake Park, Pa., on June 13 and 14. They will discuss improved relationship between workers and management.

♦ ♦ ♦

CHARLES K. OLSON has been appointed purchasing agent of the Whitcomb Locomotive Co., Rochelle, Ill. He has been associated with the company's purchasing department for some time.

♦ ♦ ♦

THOMAS J. BRAY, JR., has been appointed assistant manager of sales for bars, strip and semi-finished products for Carnegie-Illinois Steel Corp. in the Pittsburgh district. Mr. Bray has recently been associated with Republic Steel Corp.

♦ ♦ ♦

J. V. EMMONS, metallurgist, Cleveland Twist Drill Co., Cleveland, received the degree of metallurgical engineer from Case School of Applied Science, Cleveland, at its commencement June 1, for work done in connection with molybdenum-tungsten high-speed steels.

♦ ♦ ♦

Carnegie District Managers Named

FOLLOWING the recent merger of the Carnegie-Illinois Steel Corp. and American Sheet & Tin Plate, the district sales offices of the two companies will be consolidated, and appointments have been made of the managers of sales who will have charge of merchandising all products of the combined companies in each district, effective immediately, as follows:

Meryl H. Geisking at Birmingham; Wilbur Sargent Locke at Boston; David F. Austin at Chicago; L. K. Slaback at Cincinnati; Francis C. Hardie at Cleveland; Herbert E. Fryer at Denver; P. M. Guba at Detroit; E. E. Aldous at Houston, Tex.; John R. Johnston at Milwaukee; James R. Mills at New York; Edward K. Bauer at Philadelphia; Thomas J. Hilliard at Pittsburgh; Robert Korsan, Jr., at St. Louis; L. B. Worthington at St. Paul, and H. F. Knapp at Washington. A new sales district will be established in Indiana, with headquarters at Indianapolis, with W. E. Blackburn in charge as manager of sales.



Processed AS THEY TRAVEL

Materials handling is all too often thought of as merely transporting raw or semi-finished material from one machine, process or department to another. In this type of materials handling the *Continuous Flow Principle* is important. The modern assembly line takes it a big step farther; but the ultimate is reached when the traveling materials are actually processed (cleaned, painted, enameled, annealed, dried, or inspected) as they travel on Mathews Conveyers. Ask for the book "Problems Solved with Mathews Conveyor Systems."

MATHEWS CONVEYER COMPANY
San Francisco, Calif. ELLWOOD CITY, PENNA. Port Hope, Ont., Can.

OBITUARY

CYRUS H. McCORMICK, retired chairman of the board of directors of the International Harvester Co., died June 2 at his home, "Walden," in Lake Forest, Ill., where he was stricken with a heart attack. Mr. McCormick was a principal factor in the formation of the Harvester company in 1902 and its president from that time until 1918 when he became chairman of the board, which office he held until his retirement in 1935. He was born in Washington, D. C., May 16, 1859, the eldest son of Cyrus Hall McCormick, inventor of the reaper. He attended the Chicago public schools and entered Princeton University as a member of the class of 1879. After college he entered the McCormick Harvesting Machine Co., of which his father was the head. In 1884 the son succeeded to the presidency of the McCormick company, already the largest industry of its kind in the world. In 1902 the McCormick company united with others to form the International Harvester Co., and Mr. McCormick was elected the company's first president.

Conspicuous among policies forwarded under Mr. McCormick's leadership were an effective organized safety movement; voluntary compensation for workers injured in the course of duty; a voluntary system of pensions for veteran employees which was wholly supported out of company funds; a highly developed plan for appointing executives from among

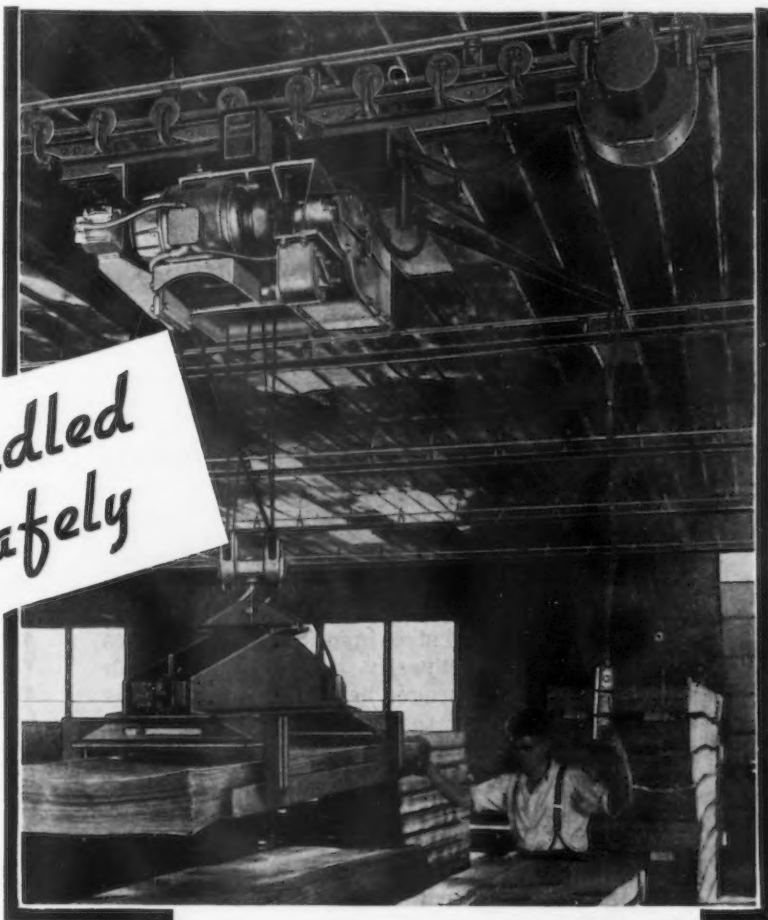
worthy men in the ranks; and above all a policy of industrial relations known as the Harvester Industrial Council Plan.



JOHN W. MACMORRIS, since July, 1935, factory superintendent of the Chance Vought Corp., East Hartford, Conn., died on June 6, aged 57 years. He was formerly machine shop superintendent and for 10 years factory manager of the old

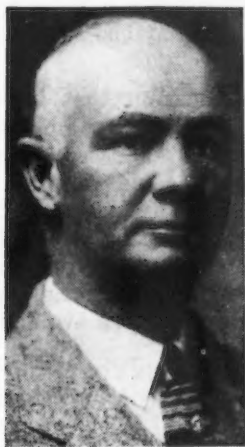
Skayef plant in Hartford. Mr. MacMorris, who had an unusually broad and active career in the fields of shop practice and factory management, started his career as an apprentice in the yards of the F. W. Wheeler Shipbuilding Co. and was identified with manufacturers of cash registers, adding machines, electrical specialties, automobiles and ball bearings. He was for a time also factory manager of the Norma-Hoffmann Bearing Co.

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Safely*



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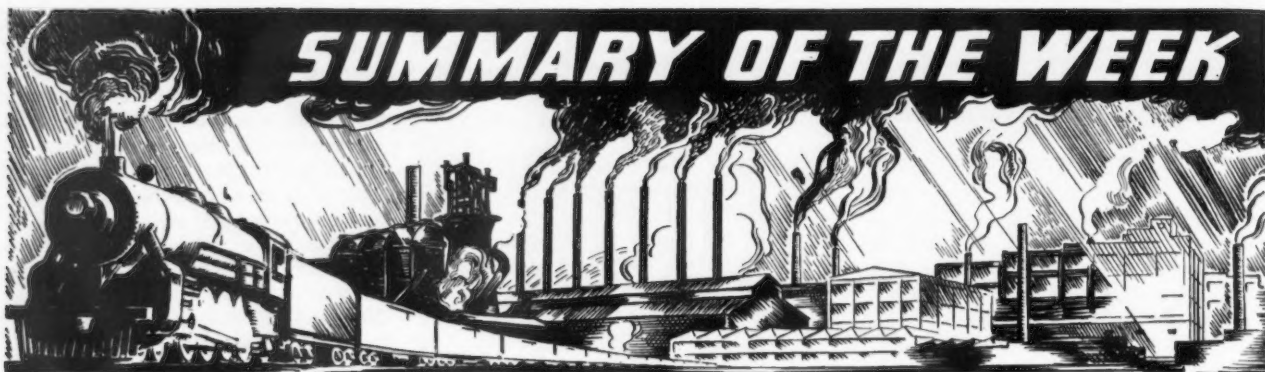
J. W. MAC MORRIS

—●—
Write for new book
on *MonoTractor*
Drive for Cranes,
Hoists and Carriers.
—●—

AMERICAN MONORAIL CO.

13103 Athens Ave., Cleveland, Ohio

THE IRON AGE, June 11, 1936—79



SUMMARY OF THE WEEK

... Strong current demand and anticipatory orders boost steel production two points to 70 per cent of capacity.

o o o

... Heavy orders now being placed indicate that June 30 deadline for second quarter shipments can hardly be enforced.

o o o

... Forward pig iron buying is heavy, but scrap market declines.

UNSEASONALLY strong demand for finished steel for immediate use, together with heavy orders in anticipation of third quarter price advances, has boosted steel ingot output two points to 70 per cent of capacity. After a month in which production averaged nearly 71 per cent, this sharp recovery from the temporary setback that came in late May is even more remarkable.

Finishing mill schedules are being expanded to the limit on many products, although limits are now set by available capacity rather than theoretical facilities. That is, many mills and their auxiliary equipment which have not been operated since 1930 have been allowed to become obsolete or cannot be run without costly and time-consuming repairs. This is also true in the case of blast and open-hearth furnaces and much rehabilitation work is under way or planned.

AMONG the major steel consuming outlets, only the automobile and agricultural implement makers are lessening their releases. In both cases strong demand had continued well beyond the usual period for curtailment. Automobile makers are buying only for clean-up purposes, and are not expected to anticipate their 1937 model needs. Tractor production is not following the downward trend of implement output and makers of tillage machinery are buying liberally at current prices in anticipation of their early fall production season.

THE railroad materials market has been enlivened by the first of the secondary rail orders. The Missouri Pacific has placed 10,000 tons in

addition to a sizable purchase earlier in the year. The car builders have distributed steel for the Chesapeake & Ohio and Pere Marquette freight cars. Car shops have also asked for price protection on 15,000 cars for which formal inquiry from the carriers has not yet appeared.

The Shell Union Oil Co. has placed approximately 25,000 tons of 6-in. to 12-in. seamless and electrically-welded pipe for a line in California with four makers, and the White Eagle Oil Co. has bought 8000 tons for a 6-in. line in Kansas.

CONSTRUCTION activity is well maintained and higher third quarter prices have stimulated action on many projects which have been in the tentative stage. Buyers of steel for identified structures may obtain price protection for 60 days and would thus have until Sept. 1 to place specifications against material ordered before June 30.

The week's structural steel awards call for 15,800 tons, compared with 20,350 tons in the previous period. New projects include 25,300 tons, against 11,825 tons. The growing volume of private jobs indicates that work of this kind may entirely offset the steady decline in public undertakings.

PRICE changes announced during the week include an advance of \$3 a ton in large rivets, a \$2 a ton increase in axles and a \$2 boost in rail steel bar quotations. Prices on both new billet and rail steel reinforcing bars have not been formally announced, but efforts are being made quietly to establish current official levels. THE IRON AGE composite price of finished steel remains at 2.097c. a lb.

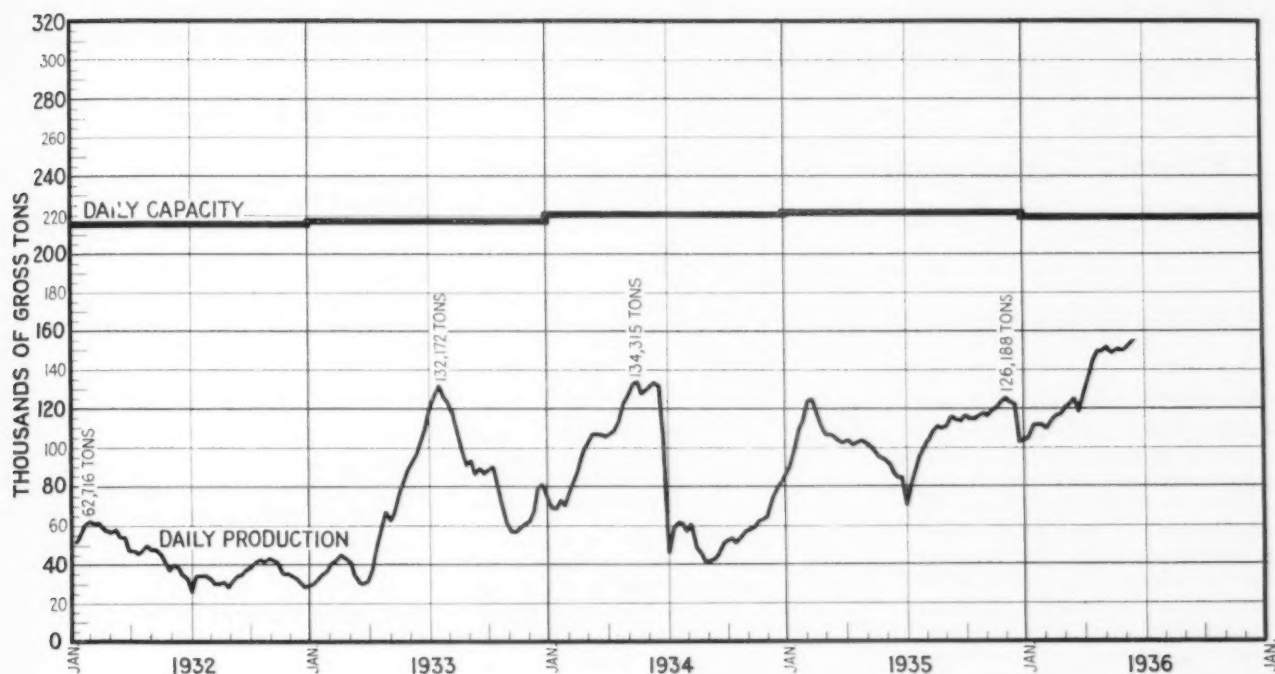
It is more and more apparent that it will be physically impossible for mills to complete shipment of all the steel placed at second quarter prices before July 1. June schedules on some forms of sheets and strip are already practically filled and regular customers can scarcely be turned away. Under the circumstances, second quarter steel will probably move during a large part of July and a sharp drop in production avoided.

THE pig iron and scrap markets are rather quiet, although third quarter pig iron buying is on a much broader scale than was the case three months ago. The pig iron composite is unchanged at \$18.84 a gross ton, but the scrap average has declined 25c. a ton to \$12.67, because of a sharp drop at Pittsburgh.

STEEL INGOT PRODUCTION

Daily Tonnage of Bessemer and Open-Hearth Steel Ingots Produced by Weeks, 1932-1936

Current Week	Last Week	Weeks Ended			
153,631	149,241	June 15, 1935	June 16, 1934	June 17, 1933	June 18, 1932
		87,446	134,315	97,504	38,927



STEEL INGOT PRODUCTION BY DISTRICTS: Per Cent of Capacity

District	Current Week	Last Week	Weeks Ended		
			May 16, 1936	June 15, 1935	June 16, 1934
Pittsburgh	66.0	63.0	62.0	35.0	52.0
Chicago	71.0	67.0	67.0	42.0	69.0
Valleys	71.0	71.0	73.0	42.0	66.0
Philadelphia	43.0	44.0	45.0	32.0	46.0
Cleveland	76.0	77.0	72.0	43.0	63.0
Buffalo	80.0	80.0	70.0	35.0	58.0
Wheeling	95.0	90.0	90.0	48.0	74.0
Southern	67.0	67.0	67.0	50.0	63.0
Ohio River	80.5	80.5	80.0	55.0	60.0
Western	80.0	77.5	80.0	30.0	35.0
St. Louis	85.5	81.0	77.5	21.0	40.0
Detroit	100.0	100.0	100.0	95.0	100.0
Eastern	85.0	85.0	85.0	35.0	55.0
Aggregate	70.0	68.0	67.5	39.5	61.0
Average Year to Date	59.9	59.4	58.1	47.1	47.9

Weekly Booking of Construction Steel

FROM THE IRON AGE

	Week Ended				Year to Date	
	June 9, 1936	June 2, 1936	May 12, 1936	June 11, 1935	1936	1935
Fabricated structural steel awards	15,800	20,350	21,315	12,195	463,870	337,595
Fabricated plate awards	9,470	1,000	6,960	2,800	123,430	79,650
Steel sheet piling awards	790	0	150	0	17,765	23,945
Reinforcing bar awards	4,265	4,100	3,710	1,980	190,915	115,305
Total Lettings of Construction Steel	30,325	25,480	32,135	16,975	795,980	556,495



... Operations rise three points at Pittsburgh and five points in Wheeling district.

o o o

... Forward buying against third quarter price advances is increasing.

o o o

... Order is placed for 25,000 tons of pipe.

PITTSBURGH, June 9.—General all-around consuming demand, plus evidence of slight forward buying, has raised steel operations in the Pittsburgh district this week three points to 66 per cent of capacity. The improvement in output is reflected in the operations of a leading producer, the leading independents and some of the smaller mills. Steel output in the Wheeling district is up to 95 per cent.

Although producers in some cases see signs of anticipatory buying, nevertheless so far this is restricted to only a few items, the balance of demand being for immediate consumption. Bookings for plates and shapes are holding up well and are receiving strength from an accumulation of highway bridges and the final stages in the car building programs.

The tube market in this district during the past week has received support from the allocation of the Shell Union Oil line pipe order, involving approximately 25,000 tons. Around 17,000 tons of seamless tubing will be manufactured in the Pittsburgh district, while 3500 tons of electric-weld will be produced at Youngstown. Meanwhile demand for oil-country goods and standard pipe remains at recent levels.

Movement of hot-rolled bars persists at satisfactory rates, with indications of even more improvement in the future. Producers expect good bookings from non-integrated mills making cold-finished material. Sources asking for this type of material continue to be well diversified. It is the firm intention of bar makers in this district to

hold to the June 30 shipping deadline as much as practically possible. Specifications for cold-finished material are experiencing a temporary lull, although improvement is forthcoming.

Tin plate activity remains at practical capacity and is receiving its support not only from packers' requirements but from general line can manufacturers. Producers are pleasantly surprised at the continuation of the high operating rate, since they did not expect it to last as long as it has. Demand for sheets has picked up over the past week and there has been evidence of some forward buying on the part of consumers. This is also true in the case of hot-rolled strip. However, some automobile companies are making last minute clean-ups on old models.

As was expected, second quarter quotations have been reaffirmed for third quarter shipment on cold-rolled strip. Third quarter prices on large rivets have been increased \$3 a ton, with the new base price at Pittsburgh \$3.05 per 100 lb. The new price at Chicago and Birmingham will be \$3.15. No change will be made in the discounts on small rivets for third quarter delivery. Steel axles have been increased \$2 a ton for third quarter delivery, with a base of 2.90c. per lb., f.o.b. Pittsburgh, or a delivered price within the switching district of 2.925c.

The outstanding development in the raw material market was a drop of 75c. a ton on heavy melting scrap, the operation having been definitely set following purchases which were the first to be made in several weeks.

Pig Iron

With third quarter prices remaining the same as those prevailing in the second quarter, it is not expected that consumers will do much forward buying. The practice of carload-lot sales continues. However, the stocks of some buyers are getting low, and there is a possibility that shipments this month will be as good as the May total. Signifying the upward movement in pig iron production, another steel-making stack has been blown in in this district.

Semi-Finished Steel

Demand during the past week eased off slightly, but the lull is expected to be only temporary. Producers here expect non-integrated mills to be in the market soon for material in order to take advantage of the \$2 difference between second and third quarter prices.

Rails and Track Accessories

While prices for third quarter delivery have not as yet been formally announced, second quarter quotations will carry through the next quarter. The local rail mill has about cleaned up its share of rails, the majority of its operation now being confined to the production of sheet bars.

Bolts, Nuts and Rivets

With prices on bolts and nuts for third-quarter delivery having been advanced slightly more than 5 per cent, there is a possibility that consumers having contracts will take advantage of present prices during this month. Meanwhile demand is holding up well with the expectation on the part of producers that further improvement will be shown within the next week or two. Car builders' programs are well under way and will extend into the Summer, which will give further impetus to movement of material in this district. Aggregate structural business continues to require its share of rivets and large bolts and nuts, and this factor is also lending its support to the good operating rate now prevailing.

Bars

Demand this week is about on a par with that previously reported. While there is some indication of forward buying, nevertheless a majority of the tonnages being ordered at this time are for immediate consumption. Sources of demand persist in their diversification, no one category being outstanding. This type of miscellaneous business is helping in a large

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous:
Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished

Per Gross Ton:	June 9, 1936	June 2, 1936	May 12, 1936	June 11, 1935
Rails, heavy, at mill	\$36.37 1/2	\$36.37 1/2	\$36.37 1/2	\$36.37 1/2
Light rails, Pittsburgh	35.00	35.00	35.00	35.00
Rerolling billets, Pittsburgh	28.00	28.00	28.00	27.00
Sheet bars, Pittsburgh	28.00	28.00	28.00	28.00
Slabs, Pittsburgh	28.00	28.00	28.00	27.00
Forging billets, Pittsburgh	35.00	35.00	35.00	32.00
Wire rods, Nos. 4 and 5, P'gh	38.00	38.00	38.00	38.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.80	1.80	1.80	1.70

Pig Iron

Per Gross Ton:	June 9, 1936	June 2, 1936	May 12, 1936	June 11, 1935
No. 2 fdy., Philadelphia	\$21.3132	\$21.3132	\$21.3132	\$20.3132
No. 2, Valley furnace	19.50	19.50	19.50	18.50
No. 2, Southern Cin'ti.	20.2007	20.2007	20.2007	19.2007
No. 2, Birmingham	15.50	15.50	15.50	14.50
No. 2, foundry, Chicago*	19.50	19.50	19.50	18.50
Basic, del'd eastern Pa.	20.8132	20.8132	20.8132	19.8132
Basic, Valley furnace	19.00	19.00	19.00	18.00
Malleable, Chicago*	19.50	19.50	19.50	18.50
Malleable, Valley	19.50	19.50	19.50	18.50
L. S. charcoal, Chicago	25.2528	25.2528	25.2528	24.2528
Ferromanganese, seab'd carlots	75.00	75.00	75.00	85.00

*This quotation is for delivery in South; in the North prices are 38c. a ton under delivery quotations from nearest Northern furnace.

*The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Finished Steel

Per Lb.:	Cents	Cents	Cents	Cents
Bars, Pittsburgh	1.85	1.85	1.85	1.80
Bars, Chicago	1.90	1.90	1.90	1.85
Bars, Cleveland	1.90	1.90	1.90	1.85
Bars, New York	2.20	2.20	2.20	2.15
Plates, Pittsburgh	1.80	1.80	1.80	1.80
Plates, Chicago	1.85	1.85	1.85	1.85
Plates, New York	2.09	2.09	2.09	2.09
Structural shapes, P'gh	1.80	1.80	1.80	1.80
Structural shapes, Chicago	1.85	1.85	1.85	1.85
Structural shapes, New York	2.06 1/4	2.06 1/4	2.06 1/4	2.06 1/4
Cold-finished bars, P'gh	2.10	2.10	2.10	1.95
Hot-rolled strips, P'gh	1.85	1.85	1.85	1.85
Cold-rolled strips, P'gh	2.60	2.60	2.60	2.60
Hot-rolled annealed sheets, No. 24, Pittsburgh	2.40	2.40	2.40	2.40
Hot-rolled annealed sheets, No. 24, Gary	2.50	2.50	2.50	2.50
Sheets, galv., No. 24, P'gh	3.10	3.10	3.10	3.10
Sheets, galv., No. 24, Gary	3.20	3.20	3.20	3.20
Hot-rolled sheets, No. 10, P'gh	1.85	1.85	1.85	1.85
Hot-rolled sheets, No. 10, Gary	1.95	1.95	1.95	1.95
Cold-rolled sheets, No. 20, Pittsburgh	2.95	2.95	2.95	2.95
Cold-rolled sheets, No. 20, Gary	3.05	3.05	3.05	3.05
Wire nails, Pittsburgh	2.10	2.10	2.10	2.60
Wire nails, Chicago dist. mill	2.15	2.15	2.15	2.65
Plain wire, Pittsburgh	2.40	2.40	2.40	2.30
Plain wire, Chicago dist. mill	2.45	2.45	2.45	2.35
Barbed wire, galv., P'gh	2.60	2.60	2.60	3.00
Barbed wire, galv., Chicago dist. mill	2.65	2.65	2.65	3.05
Tin plate, 100 lb. box, P'gh	\$5.25	\$5.25	\$5.25	\$5.25

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

Scrap

Per Gross Ton:	\$13.25	\$14.00	\$14.75	\$11.75
Heavy melting steel, P'gh	\$13.25	\$14.00	\$14.75	\$11.75
Heavy melting steel, Phila.	12.00	12.00	12.75	10.50
Heavy melting steel, Ch'go.	12.75	12.75	12.75	9.87 1/2
Carwheels, Chicago	13.50	13.50	14.00	10.50
Carwheels, Philadelphia	13.75	13.75	13.75	11.25
No. 1 cast, Pittsburgh	14.75	15.25	15.25	13.25
No. 1 cast, Philadelphia	14.00	14.00	14.00	11.25
No. 1 cast, Ch'go (net ton)	12.00	12.00	12.00	9.00
No. 1 RR. wrot., Phila.	14.75	14.75	14.75	10.25
No. 1 RR. wrot., Ch'go (net)	11.50	11.50	12.00	7.75

Coke, Connellsville

Per Net Ton at Oven:	\$3.65	\$3.65	\$3.65	\$3.50
Furnace coke, prompt	\$3.65	\$3.65	\$3.65	\$3.50
Foundry coke, prompt	4.25	4.25	4.25	4.00

Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Electrolytic copper, Conn.	9.50	9.50	9.50	8.75
Lake copper, New York	9.62 1/2	9.62 1/2	9.62 1/2	9.12 1/2
Tin (Straits), New York	\$2.50	44.00	47.00	50.50
Zinc, East St. Louis	4.90	4.90	4.90	4.25
Zinc, New York	5.27 1/2	5.27 1/2	5.27 1/2	4.62 1/2
Lead, St. Louis	4.45	4.45	4.45	3.85
Lead, New York	4.60	4.60	4.60	4.00
Antimony (Asiatic), N. Y.	13.50	13.50	13.50	12.75

The Iron Age Composite Prices

Finished Steel

June 9, 1936	2.097c. a Lb.
One week ago	2.097c.
One month ago	2.097c.
One year ago	2.124c.

Based on steel bars, beams, tank plates, wire rails, black pipe, sheets and hot-rolled strips. These products represent 85 per cent of the United States output.

	HIGH	Low
1936	2.130c., Jan. 7	2.084c., Mar. 10
1935	2.130c., Oct. 1	2.124c., Jan. 8
1934	2.199c., April 24	2.008c., Jan. 2
1933	2.015c., Oct. 3	1.867c., April 18
1932	1.977c., Oct. 4	1.926c., Feb. 2
1931	2.037c., Jan. 13	1.945c., Dec. 29
1930	2.273c., Jan. 7	2.018c., Dec. 9
1929	2.317c., April 2	2.273c., Oct. 29
1928	2.286c., Dec. 11	2.217c., July 17
1927	2.402c., Jan. 4	2.212c., Nov. 1

Pig Iron

\$18.84 a Gross Ton
18.84
18.84
17.84

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	HIGH	Low
1936	\$18.84, Jan. 7	\$18.84, Jan. 7
1935	18.84, Nov. 5	17.83, May 14
1934	17.90, May 1	16.90, Jan. 27
1933	16.90, Dec. 5	13.56, Jan. 3
1932	14.81, Jan. 5	13.56, Dec. 6
1931	15.90, Jan. 6	14.79, Dec. 15
1930	18.21, Jan. 7	15.90, Dec. 16
1929	18.71, May 14	18.21, Dec. 17
1928	18.59, Nov. 27	17.04, July 24
1927	19.71, Jan. 4	17.54, Nov. 1

Steel Scrap

\$12.67 a Gross Ton
12.92
13.42
10.71

Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	HIGH	Low
1936	\$14.75, Feb. 25	\$12.67, June 9
1935	13.42, Dec. 10	10.33, April 23
1934	13.00, Mar. 13	9.50, Sept. 25
1933	12.25, Aug. 8	6.75, Jan. 3
1932	8.50, Jan. 12	6.43, July 5
1931	11.33, Jan. 6	8.50, Dec. 29
1930	15.00, Feb. 18	11.25, Dec. 9
1929	17.58, Jan. 29	14.08, Dec. 3
1928	16.50, Dec. 31	13.08, July 2
1927	15.25, Jan. 11	13.08, Nov. 22

measure to overcome the drop in specifications from the automotive industry. Producers here have emphasized the need for consumers to definitely make up their minds concerning bookings during this month, as it is the intention to take no orders that cannot be shipped by the end of the month. It is expected that any carryovers in shipment later than the end of June will be only those cases due to off-heats or manufacturing difficulties.

Steel Sheet Piling

Demand continues at recent levels. Bethlehem Steel Co. has been awarded contracts for two tonnages to be used on the All-American Canal project, with shipping point to Potholes, Cal. One award involves 161 tons, while the other totals 370 tons. Bids for materials on the All-American Canal project are frequently split in order to maintain the control of the awarding in the hands of the Bureau of Reclamation at Denver. Awards involving over a certain amount of money must be let through the Washington office.

Reinforcing Steel

There is no outstanding development in this market. Releases are being received daily on specific jobs, and most mills are actively engaged in moving the material. Some local projects are in the conversational stage, although nothing definite has as yet been decided. As yet no formal reaffirmation of second quarter prices has been made.

Cold-Finished Bars

Demand for cold-finished material still remains under recent activity. This situation is only a temporary one, since there are already signs of forward buying on the part of implement makers and warehouse people. Manufacturers of household utilities are certain to come into the market for tonnages this month in order to gain the price advantages. Meanwhile aggregate demand persists in being well diversified.

Plates and Shapes

Specifications for plates and shapes are showing good volume, due to higher construction activity and continuation of the car building programs. Tonnage involved in structural awards this week is fairly good, with an outstanding project involving 1100 tons to be used in the construction of the South Catamount Creek dam in Edlow, Colo. American Bridge Co. has received the contract for this

job. Private projects have again made their appearance among the large number of public-financed jobs. One involves 320 tons for stack supports; another 300 tons for a Standard Oil Co. pump house, and one job requires 450 tons which will go into additional buildings for the Fisher Body Corp. Structural inquiries this week show a healthy tone, the outstanding one of which is 12,200 tons to be used in the construction of a bridge over Rockaway Inlet at Brooklyn. The New York Central Railroad is asking bids on 4700 tons to be used as a roof covering between West 111th and West 121st Streets, New York.

Tubular Products

Books have been opened for third quarter delivery on tubular products with no change in the prices existing during the second quarter. Meanwhile demand for oil-country goods remains at recent levels with as good, if not a better tone in the demand for standard pipe. Awards have finally been made on the 25,000-ton line pipe order for the Shell Union Oil Co. Bids were placed several weeks ago for this line which will run between Bakersfield and Martinez, Cal. Sizes involved are 6, 8, 10 and 12 in., some of which is electric-welded and the balance seamless. Three local concerns shared in the order to the extent of approximately 17,000 tons of seamless tube. Approximately 3400 tons of electric weld will be manufactured in the Youngstown district, while 3500 tons of this order went to a Mid-Western concern. It is understood that the 179-mile, 6-in. line pipe ordered for the White Eagle Oil Co. in Kansas has been awarded to a local mill.

Wire Products

Activity in this market remains dull, with no change in the movement of manufacturing wire. However, it is understood that jobbers of merchant wire have had a better late spring demand than they expected, and as a result they will probably be in the market to replenish their stocks by the first of July. Several weak spots in the resale trade have been cleaned up over the past month, resulting in a firmer situation with regard to merchant wire prices. With the success attained in this direction so far, it is expected that the tendency will continue.

Sheets

Specifications show improvement this week. Although part of the increase can be ascribed to forward buying, nevertheless the majority of the tonnage is for immediate

consumption. The tendency for heavy forward buying will be more discernible within the next week or so. Sources of demand persist in the miscellaneous category. Some outstanding bookings during the past week were from car roof builders. Other sources ordering freely consist of drum manufacturers, household appliance people, stove makers, and in a few cases makers of machinery. Automobile buying has leveled off further.

Tin Plate

Pressure from general line can makers, coupled with seasonal requirements from packers, are responsible for tin plate activity remaining at practical capacity this week. Shipments are still slightly ahead of production. Reports from agricultural regions indicate that a good crop is in prospect so far this season. Beer plate production this year is well ahead of last year's tonnage, and is a large factor in the satisfactory tin plate production rate.

Strip Steel

As indicated previously, books have been opened for the third quarter for cold-rolled strip, with no change from present quotations. This condition was brought about due to the highly competitive situation prevailing in the cold-rolled sheet and strip market. Demand has shown further improvement during the past week. Analysis indicates that some of this improvement is in the nature of forward buying, one notable case coming from implement makers. On the other hand, part of the improvement was due to further clean up of old models on the part of automobile makers. This latter type of orders calls for immediate shipment.

Coal and Coke

Beehive coke, which for a short time took the spotlight, has now returned to its normal position, since by-product plants have sufficiently increased operations to take care of shortages prevalent some time ago. Some merchant blast furnaces, however, are still taking beehive coke in order that they may accumulate supplies of by-product to be used for the domestic trade next fall. As reported previously, if certain steel companies, which have been in the domestic coke market for some time, continue their high rate of pig iron activity, the normal stocks usually accumulated at this time for domestic consumption in the fall, will be much smaller than previous years, and in some cases stand a chance of being eliminated.

CHICAGO



... Ingot production rises to 71 per cent.

o o o

... Orders for June shipments are in tremendous volume.

o o o

... Second quarter shipments may scarcely be completed in July.

CHICAGO, June 9.—The urge to take all possible advantage of second quarter prices is putting mills under extreme pressure, and ingot output has bounded upward to 71 per cent of capacity. Third quarter contracting is starting in a small way, but sales, which in some cases are three times the volume of 10 days ago, are most strongly influenced by rush orders for immediate shipments and a vast number of specific projects on which protection is wanted and on which mills can give protection for 30 days after June 30.

Third quarter price changes are boosting the market out of season and speculative tonnages are in evidence. The rush for protection is disclosing some plans which heretofore have not been made public. For instance, price protection has been asked on 15,000 freight cars.

This whole situation raises the question as to when deliveries will be stopped on the general run of business taken at the low prices. As near as can be ascertained at this time such shipments will extend to the end of July and possibly somewhat longer. The market is unusual in respect to the great number of specific projects, a condition brought about by the lavish expenditure of public funds.

The secondary rail buying movement is starting, the Missouri Pacific having ordered 10,000 tons. Rail mills are scheduled to operate into early August on present bookings and there is hope that new buying will carry activity through to the fall months when 1937 buying can be expected.

The scrap market is listless and gives no indication beyond heavy

shipments of what is going on in finished steel.

Pig Iron

Since the first of June contracting has reached three times the volume of the first nine days in March. Interest in forward buying is swinging upward and sellers expect a heavy movement during the next 30 days. Users have three incentives, one being that business remains good. Another is that their stock piles are low and the third reason is that many melters believe that if steel advances stick

there may be higher pig iron prices in the fourth quarter. Automobile foundries have dropped off considerably but railroad equipment demand is taking up most of the slack, this being particularly true in malleable shops. Shipments are averaging very close to the May rate.

Coke

May prices have been carried forward for June deliveries. Shipments in the first week of June were 10 per cent heavier than in the corresponding period in May.

Cast Iron Pipe

Evanston, Ill., has ordered 1000 tons and Milwaukee is taking bids on a like amount. Chicago's 2800 tons will probably be divided between Glamorgan Pipe & Foundry Co. and the United States Pipe & Foundry Co. Cicero, Ill., has not placed orders for its tonnage. Small orders are less numerous but attractive tonnages, such as the above, add a life to the market which has not been in evidence for many months.

Reinforcing Bars

Local shops remain busy but the character of orders is changing, the trend being strongly in the direction of numerous small tonnages. Dealers are complaining about the overhead cost of routing small orders, many of which were taken at low prices. This situation, plus the rush at mills, is leading to a move to publish prices, which is expected



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to stabilize the market and bring higher returns to shops. Another result of published prices would be to drive in old quotations and, as a consequence, books are expected to grow in the next 10 days.

Wire Products

Although shipments have sagged somewhat from the spring peak, they are still in excellent volume and far in excess of the movement which is normally expected at this time of year. In fact, business momentum has carried the wire market forward at least five weeks beyond the highest hopes of producers. Output still stands in the range from 60 to 65 per cent of capacity, and a relatively small part of this production is going into mill stocks. Good support is coming from all areas and practically all sources. Demand from automobile centers is down and may go lower before new models will dictate heavier use of wire products. Use in farm areas is surprisingly good, considering the time of year. Railroads are more active, but their inquiries and orders are still very spotty. Unchanged prices for the third quarter are keeping this market from surging upward.

Sheets

Sustained high consumption and some speculative buying are forcing mills to capacity, notwithstanding that automobile plants are taking smaller quantities. Miscellaneous

consumers find no change in the general business picture and farm implement manufacturers are temporarily on slightly lower schedules. However, they plan an early start on fall schedules and they are buying heavily against late summer needs. Deliveries extend forward from four to five weeks on the average.

Tin Plate

Mills are at capacity output and some units cannot promise better than eight to ten weeks' deliveries.

Rails

The Missouri Pacific is the first western railroad to enter a secondary tonnage, but there are under-surface rumblings that point to similar purchases during the summer months. The Missouri Pacific has augmented its 13,500-ton spring purchase with an additional 10,000 tons distributed among Carnegie-Illinois, Inland and Colorado. Local rail mill operations average 30 per cent of capacity and books will keep mills in production into the early part of August. Miscellaneous orders for track accessories total 15,000 tons.

Plates

Two unidentified pipe orders have been taken by Western makers. One of these calls for 6000 tons of plates which will be delivered to the Pacific Coast, and the other requires 600 tons. Growing sources of plate business are con-

tract railroad car shops which have not yet on existing orders reached the peak of steel demands. Steel for the Chesapeake & Ohio cars has been allocated, but shipments have not started. An interesting development is that car shops have asked for price protection on 15,000 cars which have not yet appeared in the market. Refinery rehabilitation work is active, but oil tank needs are slow. Railroad shops are busy on heavy repairs and on new car construction and there is excellent promise that efforts in both lines will be expanded as the summer advances. Mississippi River work is again under way in the forms of locks in Missouri and a dam in Wisconsin.

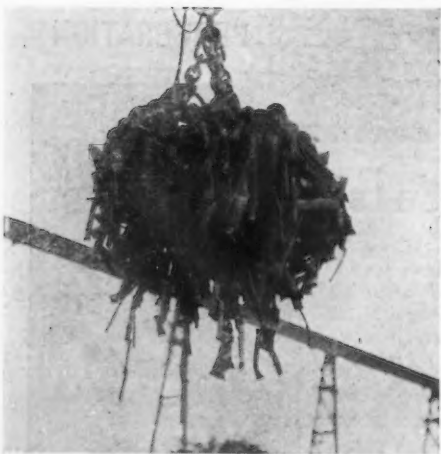
Structural Steel

Mills are being put under pressure on all sides for price protection on specified projects, of which there is an unusual number. Producers are now permitted to give protection for 30 days from June 30, with deliveries to be extended in accordance with the requirements of the project. Outstanding in this week's business is 1800 tons awarded by Wisconsin Steel Co. to Wisconsin Bridge Co. This steel will be used to house development work on the No. 2 bloomer and the No. 2 rod mill. Bridge and overpass work is active in most Western states.

Bars

Orders are soaring as most consumers rush to take all possible advantage of second quarter prices, either by actual orders or in the form of protection on specified projects. There is now no chance to clear second quarter books by the first of the month, and the spillover will extend at least to the end of July. Not a small part of tonnage being added to books is speculative, though consumption in most lines remains heavy. Farm implement manufacturers are making heavy commitments, part of which will be used for tillage machinery schedules which may be started in August, about one month earlier than usual. Tractor builders still find themselves behind demand and with active business in sight for the near future.

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... Awards of 4265 tons —7515 tons in new projects.

AWARDS

Bedford, Mass., 175 tons, hospital additions, to Barker Steel Co.

Jersey City, 600 tons, American Can Co. building, to Jones & Laughlin Steel Corp.

Jersey City, 500 tons, Colgate-Palmolive-Peet building, to Joseph T. Ryerson & Son, Inc.

Jersey City, 130 tons, stadium, to Joseph T. Ryerson & Son, Inc., and Capitol Steel Co.

Montgomery County, Pa., 400 tons, highway bridge, to Taylor Davis, Inc.

State of Pennsylvania, 300 tons, dam, to Bethlehem Steel Co.

Cleveland, 150 tons, Triskett Road grade crossing separation, to Carnegie-Illinois Steel Corp.

Denver, 112 tons, Owyhee project, Invitation No. 36156-A, to Colorado Fuel & Iron Co.

Denver, 162 tons, All-American Canal project, Invitation No. 42462-A, to Soule Steel Co.

Denver, 248 tons, Columbia River project, Invitation No. 38265, to Republic Steel Corp.

Denver, 153 tons, Uncompahgre project, Invitation No. A 45064-A, to Bethlehem Steel Co.

Los Angeles, 100 tons, market for Ralph's Grocery Co., to an unnamed bidder.

Sausalito, Cal., 240 tons, tunnel and roadway approach to Golden Gate bridge, to Bethlehem Steel Co.

Sacramento, Cal., 294 tons, city reservoir at filtration plant, to Truscon Steel Co.

San Francisco, 170 tons, administration building at San Francisco airport, to Gunn Carle Co.

San Francisco, 132 tons, State viaduct at Harrison Street, to Soule Steel Co.

Canal Zone, 250 tons, Schedule No. 3135, to an unnamed bidder.

Pueblo County, Colo., 142 tons, State overpass and bridge, to an unnamed bidder.

NEW REINFORCING BAR PROJECTS

South Boston, 400 tons, Government housing project.

Brooklyn, 1000 tons, Marine Parkway Authority; bids to be taken June 24.

Hightstown, N. J., 142 tons, grade crossing elimination; bids to be taken June 22.

Goodmans, N. J., 100 tons, grade crossing elimination; bids to be taken June 22.

Lancaster, Pa., 200 tons, high school; bids June 22.

Springfield, Ill., 500 tons, archives building.

State of Indiana, 500 tons, highway work.

LaPorte, Ind., 100 tons, sewage disposal plant.

Chicago, tonnage being estimated, bus terminal.

Chicago, estimates being prepared, Wieboldt Department Store.

Farmington, Mo., 176 tons, cottages on State farm; McCarthy Construction Co., St. Louis, low bidder.

Clarksville, Mo., 370 tons, locks on Mississippi River.

Denver, 995 tons, All-American Canal project under seven invitations; bids opened.

Denver, 180 tons, Moon Lake dam, Invitation No. 43071-A; bids opened.

Denver, 441 tons, Columbia River project under two invitations; bids opened.

Denver, 121 tons, extensions to city water system; bids June 16.

Lake County, Colo., 105 tons, State overpass and bridge; bids June 16.

Los Angeles, 100 tons, reconstruction of Hooper Avenue school; bids opened.

Los Angeles, 100 tons, shop and physical education building at Adams junior high school; bids opened.

Los Angeles, 100 tons, auditorium at Palms school; bids opened.

Los Angeles, 110 tons, Budlong Avenue school; general contract awarded.

Whittier, Cal., 100 tons, dressing room building at high school; bids opened.

Pullman, Wash., 300 tons, women's dormitory at Washington State College; bids opened.

San Francisco, 125 tons, Thompson Diggs warehouse; bids opened.

Los Angeles, 1250 tons, United States Engineers; Proposal 719, bids June 12.

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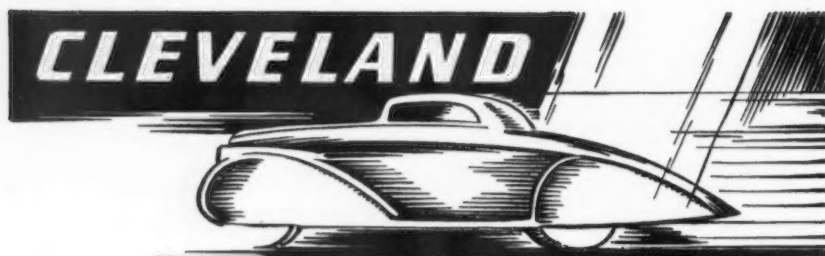
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... Rush orders for second quarter shipment offset usual seasonal lull.

o o o

... Ingot production declines a point to 76 per cent of capacity.

o o o

... Prices are advanced on large rivets, axles and rail steel bars.

CLEVELAND, June 9. — Demand for finished steel is being maintained at recent levels. Any falling off that might have resulted from a seasonal lull or a slowing down in the motor car industry has been offset by a stimulation of advance buying that has been caused by the price advances for the third quarter. Ingot output in the Cleveland-Lorain district declined one point this week to 76 per cent of capacity, one open-hearth furnace in Lorain having been taken off. Local sheet and strip mills have full operating schedules this week.

Many consumers are placing liberal stock orders, particularly in bars, sheets and hot-rolled strip steel. Sheet tonnage continues to come from the automobile companies and this includes some new specifications for material for body members for new models. While automobile manufacturers are not expected to stock up much in anticipation of the price advances, parts makers who seldom have changes in sizes are ordering rather freely. Miscellaneous demand for sheets is still heavy.

Axles and wheels for the 5900 cars recently placed by the Chesa-

apeake & Ohio and Pere Marquette Railroads were purchased during the week. The axles were divided among four makers. The wheels were about equally divided between steel and cast iron and orders for the steel wheels also were split up among four manufacturers.

Rivets have been marked up \$3 a ton for the third quarter. One leading producer has announced the reestablishment of the present price on new billet steel reinforcing bars. The price to contractors being 2.05c., Pittsburgh, and 2.10c., Cleveland and Chicago. Axles have been advanced \$2 a ton to 2.90c., Pittsburgh.

With mills rapidly filling up with orders, some of which cannot be filled in June, attention is being given to the deadline date for shipping steel sold at current prices, while some sheet mills are disposed to take no orders they cannot fill this month, others already have entered some tonnage that they cannot ship until well in July and some of the bar mills are in a similar position with respect to small sizes. Several mills are now inclined to set July 15 as the deadline date for shipments of steel taken at present prices.

Pig Iron

Contracting for the third quarter has started at a much heavier rate than producers anticipated. One leading lake furnace interest has sold three times as much iron as during the corresponding period in March after the opening of books for the second quarter. Sales included several lots of from 1000 to 4000 tons to automobile foundries and considerable additional business is pending. The increased volume of sales as compared with the second quarter is attributed to the cleaning up of stocks of low-priced iron that foundries had taken in at the end of the first quarter. While shipments from motor car foundries have tapered, there is an improvement in the demand from makers of railroad equipment, some of the steel foundries in that field now being very busy. Ohio silvery iron has been reaffirmed at the present price for the third quarter.

Sheets

Miscellaneous demand for sheets is fairly heavy and now supplies some of the mills with more tonnage than the motor car industry. The third quarter price advance is causing some consumers to order in larger lots than usual in order to build up their stocks. Galvanized sheets are very active, business being stimulated by demand for sheets for car roofing, culverts and increased residence construc-

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tion work. Demand from stove manufacturers continues heavy. Orders from refrigerator manufacturers have tapered off. Some of the mills have about all the tonnage on their books that they can ship during June except heavy hot-rolled sheets.

Strip Steel

Heavy specifications for hot-rolled strip are coming from non-integrated cold rolling mills that are stocking up before the price advance which becomes effective July 1. Additional new business in sizable lots has come from some of the leading manufacturers of automobile parts.

Rail Steel Bars

A price advance of \$2 a ton on rail steel merchant bars and small shapes for the third quarter has been announced by the Republic Steel Corp. The new prices are 1.80, Pittsburgh, and 1.85, Cleveland, Chicago, and Gary, and 1.90, Buffalo. No price announcement has been made on rail steel reinforcing bars and an advance on these is not looked for.

Bolts, Nuts and Rivets

The Champion Rivet Co. has announced a \$3 a ton price advance on large rivets, effective immediately, and covering third quarter contracts. As most consumers are under cover the advance will not apply to much business before July. The advance was made because of the advance on hot-rolled bars. The new prices are 3.05 Pittsburgh and Cleveland, and 3.15 Chicago and Birmingham. Small rivets will remain unchanged at 70 and 5 per cent off list.

The leading local producer has fallen in line with the 5 per cent advance announced last week on bolts and nuts. The higher prices are effective for shipment this month as well as for the third quarter, but they will apply on practically no tonnage until the coming quarter, as consumers are under contract.

Stove bolts in packages have been revised but these bolts in bulk are unchanged.

Bars, Plates and Shapes

Miscellaneous demand for bars is fairly heavy, although business from the motor car industry has tapered off. Some consumers are placing orders for stock shipment and some tonnage has been entered that will not be shipped until after July 1. Activity in the construction field is light. Bids were taken today on two highway projects that call for several bridges requiring 836 tons of structural steel. Plates are in good demand in carlots from heavy machinery, boiler and small tank manufacturers.

Arc Welded Design Data in Chart Form

DATA necessary for producing arc welded designs are concisely presented in an engineering drafting room chart issued by the welding engineering department of the Lincoln Electric Co., Cleveland.

The chart is 24 x 32½ in. and has a metal strip across the bottom and a clip for attachment to the wall. It is printed in such a way

that it can be blue printed for distribution to individual draftsmen and others concerned with product design. Data include weld symbols for working drawings, types of joints for arc welding, illustrated suggestions for better arc welded design, and sketches explaining the nomenclature of welds and weld dimensions. Also, tables giving properties of base metals, weld metals, and electrode metals for hard facing, and tables giving length of fillet weld to replace rivets, and safe allowable loads for fillet welds in shear.



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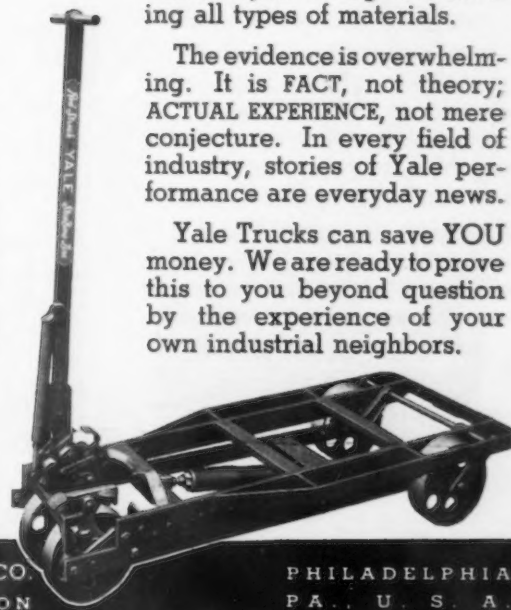
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PHILADELPHIA DIVISION



PHILADELPHIA
P. A. U. S. A.



... Anticipatory orders swell finished steel bookings.

• • •

... Some mills indicate that third quarter books will be closed by next week.

• • •

... Structural inquiries are being rushed to bidding stage.

NEW YORK, June 9.—With only three weeks left in which mills can technically make second quarter shipments at current prices, the volume of orders on products which will be advanced is rising sharply. Most noticeable, is demand for sheets, strip steel, bars and small shapes from warehouses. However, many construction jobs which have been tentatively pending are being rushed to the contact stage in order that buying may be protected for 60 days at current prices under identified structure arrangements.

Among the large jobs on which bids will be taken this month are

the Marine Parkway project in Brooklyn, requiring 10,000 tons of shapes, 1000 tons of piling and 1000 tons of reinforcing bars. Tenders are asked June 24. The roadway elevation over the New York Central tracks between 111th and 121st Streets, Manhattan, will take about 5000 tons. Many jobs of 500 to 1000 tons are pending and there is a heavy volume of even smaller work.

The American Car & Foundry Co. allocated steel last week for the Chesapeake & Ohio freight cars which it will build at Berwick, Pa. Some 15,000 tons was involved. The New York Central is

still said to be considering rail purchases and other eastern roads are taking steel regularly for car repairs.

Demand for tin plate is still the outstanding feature of this market. Mills are six to eight weeks behind on deliveries of cold-reduced plate, and heavy tinning operations have made tin mill black plate almost impossible to obtain. Galvanized sheets are also in very large demand, as available galvanizing facilities are being utilized to the utmost. Much capacity, unused over the last five or six years, has become obsolete.

A leading maker of rail steel merchant bars has advanced prices \$2 a ton, but no change is being made in rail steel reinforcing steel.

Submitting a figure of \$3,385,000, the Bethlehem Shipbuilding Corp. was low bidder for the construction of a dredge for the Boston engineering district of the War Department.

Pig Iron

Contrary to earlier reports, Mystic furnace at Everett, Mass., resumed operations on June 1, and, at the same time, it was officially announced that third quarter prices would be unchanged. Other sellers in this district have quietly reaffirmed. Though new tonnages are mostly confined to June delivery, third quarter business is beginning to come in, and an expansion in aggregate sales volume is indicated. Large unsatisfied inquiry for third quarter iron includes a single lot of 4000 tons. The purchaser in this instance has specified 40-lb. pigs on the major portion of the inquiry. Other amounts in varying quantity are also reported active. June bookings are expected to exceed the May volume by a comfortable margin, as not only will the customary practice of spot buying continue, but in addition there will be a heavier forward inquiry for third quarter needs. While current sales are improved, foundry operations remain about the same. It would appear, therefore, that consumer stocks are down to a low point where replenishment is necessary.

Reinforcing Steel

The reinforcing bar market was more active this week than at any time in the past month. Jones & Laughlin Steel Corp. was awarded 600 tons for an American Can Co. building, and Joseph T. Ryerson & Son, Inc., was given 500 tons for a Colgate-Palmolive-Peet building, both in Jersey City. Prices are generally reported firm, although reports of shading persist. Pend-

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ing projects include 800 tons of bars for the Bronx housing project, bids on which have already been taken, and 1000 tons for the Marine Parkway Authority in Brooklyn.

PIPE LINES

South American Gulf Oil Co., 17 Battery Place, New York, recently acquired as a joint interest of Socony-Vacuum Oil Co., Inc., 26 Broadway, and Texas Corp., 135 East Forty-second Street, has contracted with Government of Colombia to build a welded steel pipe line from Barco, Colombia, oil district, where company has a crude oil concession, to a Colombia port, about 240 miles distant; agreement provides that line will be built within 36 months after a production basis of 23,000 bbl. per day is developed. Cost over \$5,000,000, including booster pumping plants and other facilities.

Superintendent, Army Transport Service, New York Port of Embarkation, Brooklyn, closes bids June 15 for quantity of welded steel pipe (Circular 87).

Plant City, Fla., has let contract to Ivy H. Smith Co., Barnett Building, Jacksonville, Fla., for about 100,000 ft. of black steel pipe, for gas transmission from local gas plant.

San Diego Consolidated Gas & Electric Co., San Diego, Cal., has authorized new 2½ and 3-in. welded steel pipe line from connection with present line near Carlsbad, Cal., to Escondido, Cal., about 15 miles, for natural gas transmission. Pipe will be furnished by Western Metal Supply Co., San Diego.

Public Service Co. of Colorado, Denver, plans new 34-in. welded steel pipe line near Salida, Colo., for gas transmission, to replace section of existing line of same size. Cost over \$150,000.

Purchasing Agent, Bureau of Reclamation, Denver, asks bids until June 15 for welded steel pipe and standard black pipe fittings (Proposal 38266-A).

Home Oil & Refining Co., Great Falls, Mont., has plans for new 6-in. welded steel pipe line from Cut Bank, Mont., oil field district to point near Great Falls, about 100 miles, for crude oil transmission to new tank farm at last noted location, including about 20 miles of steel pipe lines for gathering system. Line will run by way of Conrad, Mont., with two pumping stations between that point and Cut Bank, and similarly, two such stations between Conrad and Great Falls, for booster service. Cost close to \$700,000.

Loup River Public Power District, 2307 Thirteenth Street, Columbus, Neb., C. B. Fricke, president, asks bids until June 19 for three riveted steel plate pressure pipes, 20 ft. diameter and 320 ft. long, plate thickness ¾ to ¾-in., for penstocks for hydroelectric power station near Genoa, Neb. Harza Engineering Co., 20 North Wacker Drive, Chicago, is consulting engineer.

City Gas Co., 215 Dundas Street, London, Ont., plans steel pipe lines for natural gas distributing system at Byron, Ont., where franchise is being secured. Cost over \$50,000.

Shell Union Oil Co., Los Angeles, has awarded 23,719 tons of 6 to 12-in. electric weld and seamless pipe, about 314 miles, for a pipe line from Bakersfield to Martinez, Cal., as follows: 3372 tons of electric weld to Republic Steel Corp., 11,718 tons of seamless to National Tube Co., 1430 tons of seamless to Spang, Chalfant & Co., 3699 tons of seamless to Jones & Laughlin Steel Corp., and 3500 tons of electric weld to A. O. Smith Corp.

RAILROAD BUYING

Portland Terminal Co. is inquiring for five diesel-electric locomotives.

Toledo, Peoria & Western is asking for bids on four 4-8-4 type locomotives.

Central of Brazil is inquiring for three 4-10-12 type locomotives. Paulo de Andrade Martins Costa, Praca da Republica, Rio de

Janeiro, Brazil, is chief mechanical engineer.

American Railroad of Porto Rico is asking for seven freight cars.

Union Pacific is inquiring for underframes for 50-ton box cars of A.A.R. standard modified, in lots of 250, 500 and 1000.

RAILS AND TRACK SUPPLIES

Missouri Pacific has awarded 10,000 tons of rails as follows: 3800 tons to Carnegie-Illinois Steel Corp., 2000 tons to Inland Steel Co. and 4200 tons to Colorado Fuel & Iron Co.

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PHILADELPHIA



... District operating rate drops one point to 43 per cent.

o o o

... Mills continue to book second quarter orders.

o o o

... Summer months are expected to be dull.

PHILADELPHIA, June 9.—Consumers are beginning to accept the impending price advances for third quarter delivery with a certain degree of equanimity. In view of the fact that they have had considerable forewarning, shipping dates are being construed liberally and mills are doing a convincing job in justifying the advances because of higher production costs.

As yet there has not been any noticeable bulge in consumer buying for protection. However, mill representatives fully expect such a situation to develop to a moderate degree before the middle of the

month. Inasmuch as mills have not yet set an absolute deadline for second quarter business, most consumers are not inclined to take very seriously the general insistence that June 30 will be the final date for low-priced deliveries.

Enough business has been forced in by the forthcoming price increases to keep rolling schedules higher than they would be otherwise. Several furnaces in this district have been taken out of production, and the district rate is consequently down one point to 43 per cent of potential output. This rate compares very favorably to a

rate of 32 per cent for this same period a year ago.

Pig Iron

This market shows no change from last week. With prices holding, users perceive no advantage in discarding their customary practice of ordering sparingly and only against nearby requirements. With only slight exaggeration, there are 10 sellers of iron petitioning even the smallest melter for a share of his business; consequently no one furnace finds this district very profitable. In May about 2683 tons of Dutch and 365 tons of Indian iron came into this immediate area.

Sheets and Strip

Strip is never an active commodity in this area, and current interest is lacking. The pending price advance is still the dominant factor in the sheet market. Practically no mill which makes blued sheet specialties is taking additional business for these grades because of the physical impossibility of completing shipments before the month's end. Also, several mills are somewhat hesitant about taking second quarter orders for certain cold-rolled grades. Nevertheless, it is very significant that no mill has yet announced an absolute deadline beyond which no more second quarter business will be taken. The significance is that promise sheets of more than one mill show 5 to 6 weeks' delivery on cold-rolled grades, and as high as 5 weeks for common sheets, long ternes, etc. The only interpretation is that most sellers will construe very liberally the provision that all second quarter business will be shipped out by June 30. So far, most consumers and warehouses have shown little inclination to hedge on the price advance by anticipating their requirements. However, mills prophesy a modest surge in forward buying before the middle of the month or as soon as they adopt a firm attitude regarding final shipping dates.

Plates, Shapes and Bars

There is a moderate turnover of small plate orders, but new tonnage business continues to be conspicuous by its absence. Railroads are showing no interest even in repair requirements, let alone new construction. One shipbuilder is booked almost completely, but much of the steel for these orders will not be released before fall. Fabricating shops and suppliers of shapes are quite busy on small projects, but large tonnage specifications are not very frequent. A 2700-ton school and an 1850-ton



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bakery are still active here, and new business includes 500 tons for two New Jersey bridges, 100 tons for a Pennsylvania bridge, and about 200 tons of shapes and 200 tons of bars for a school at Lancaster, Pa.

Imports

The following iron and steel imports were received here last week: 5420 tons of manganese ore from British West Africa; 1000 tons of pig iron and 1 ton of ferrotitanium from England; 802 tons of pig iron from British India; 50 tons of ferromanganese from the Netherlands; 9 tons of steel billets, 30 tons of CDS wire, 44 tons of steel tubes, 9 tons of steel forgings and 93 tons of steel bars from Sweden; 31 tons of steel bars, 8 tons of steel bands and 3 tons of structural shapes from Germany.



... Open-hearth activity remains at high level.

o o o

... Foundry operations high.

BUFFALO, June 9. — Buffalo open-hearths are maintaining last week's gait with 22 active at Bethlehem's Lackawanna plant, two at Wickwire-Spencer and seven at Republic. Seneca sheet division is operating at 85 per cent.

Pig iron producers report a very good May, with business continuing at about the same pace. They are beginning to believe that foundry operations during the third quarter will be maintained as well as during the first two. Shipments are better and an increase in the individual tonnage is noted.

A Buffalo concern will fabricate 165 tons for an addition to the Iroquois Brewing Co. plant. Another fabricator has contracted for 400 tons of structural steel for a Steuben County highway bridge. Three highway bridge jobs to be bid June 16 are as follows: Ontario County, 140 tons; Schenectady County, 100 tons; St. Lawrence County, 150 tons. A grade crossing improvement in Syracuse will require 500 tons of structural, and bids will be taken June 23 for a 1200-ton school program in Whitesboro, N. Y.



... Shell Oil buys 25,000 tons of pipe.

o o o

... Cast iron pipe inquiry for 13,000 tons appears.

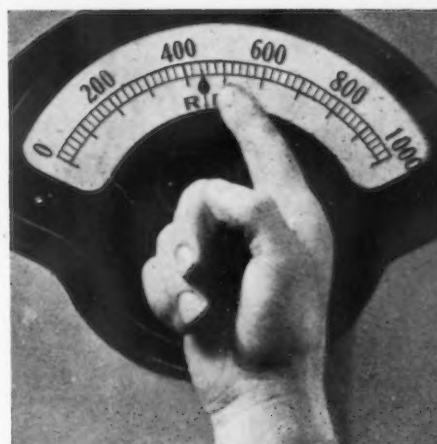
SAN FRANCISCO, June 9. — Contracts involving major tonnages featured the past week's activity on the Pacific Coast. At Los Angeles the Shell Oil Co. purchased 25,000 tons of steel pipe from four bidders, placing tonnages as follows: 9000 tons of seamless to Columbia Steel Co. for National Tube Co., 9000 tons of seamless divided between Republic Steel Corp. and Jones & Laughlin Steel Corp. and 7000 tons of electric-welded divided between A. O. Smith Corp. and Republic Steel Corp.

It is understood that bids for the two Matson Navigation Co. freighters, involving 6000 tons of plates and 4000 tons of shapes, are higher than original estimates and may have to be refigured. The Southern Pacific Co. has bids under advisement for 2800 box and gondola cars. As usual, steel tonnages involved are held in the utmost secrecy, but the guess is that about 16,000 tons of shapes and plates will find their way into the new rolling stock.

At Los Angeles the Department of Water & Power has not yet purchased the 7780 tons of 36-in. welded steel pipe for the Stone Canyon project, although it is expected that Southwest Welding & Mfg. Co. will take the award.

The largest cast iron pipe contract of the year comes up for bids June 17 at Los Angeles, when the Department of Water & Power will consider figures for 392,645 ft. of 6 to 24-in., which will weigh approximately 13,000 tons.

Following the lead of the East, mill price schedules on the Pacific Coast will be revised upward \$2 a ton as of July 1. The remaining few weeks of the quarter will see a scramble to get orders placed at the present prices, and a good backlog of business should be on the mills' books at the start of the third quarter. Mill operations continue at capacity and Eastern mills are reported to be furnishing material here.



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... Foundry melt in New England is increasing.

o o o

... Mystic furnace blown in June 1.

BOSTON, June 9.—Although pig iron sales dropped off last week, sentiment among and business with foundries are better. At least two eastern Massachusetts foundries and one New Hampshire melter have taken on extra moulders and are operating practically at capacity, and the melt generally throughout New England has been stepped up a little with prospects of increasing further by July 1. Iron buyers, particularly some of the largest, are in a more receptive mood, possibly due to talk of higher prices, and some of them intimate they will place orders shortly. However, many are now covered up to Oct. 1. The 500 to 600-ton lot of Belgium iron landed here several months ago has been cleaned up at \$18.50 to \$18.75 a ton, f.o.b. here. The last lot went to a nearby stove foundry, which also bought a small tonnage of India iron.

The Mystic blast furnace was blown in June 1.



... Steel orders for June shipment are heavy.

o o o

... Several large pig iron orders placed.

ST. LOUIS, June 9.—Announcement of the price increases in finished iron and steel has had the effect of stimulating business in sheets, shapes and bars considerably. Realizing that shipments must be made before July 1, and that orders are piling up on the mills who are already behind in their deliveries, consumers of steel, especially manufacturers using these products, are eager to place their business early. Buying of shapes is mostly for stock.

Melters in the district have been placing some heavy orders for pig iron since books were opened for third quarter, there having been several for several thousand tons. These melters show a disposition to cover their requirements for the quarter. On the other hand, some users are content to buy only for their immediate needs, feeling that because the price is the same as prevailed during the preceding quarter there is no need for any heavy buying. The melt in the district is on the increase, jobbing foundries being especially active. Stove plants will begin on their fall lines within a few weeks. The agricultural implement trade shows no let-up.



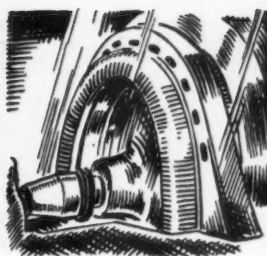
... June sheet mill schedules nearly filled.

o o o

... Foundry operations at 70 per cent.

CINCINNATI, June 9. — Consumer desire to cover sheet needs at lower prices brought heavy tonnage ordering last week. Mill interests indicate capacity bookings, with June rolling schedules nearly filled. Despite the heavy demand, speculative buying appears to be nil, current business being compatible with consumers' operations. Advance ordering for July shipment is retarded by higher prices, though consumers generally accept the price situation as inevitable. Automotive demand shows indications of easing until full operations on new models begin. Mills are operating at capacity to complete backlogs for June delivery.

Ordering of pig iron is steadily conservative. Since both Northern and Southern furnaces are adhering to published prices, melters are in the market for regular needs in one and two-car lots. Speculative buying is absent. Foundry operations continue at about 70 per cent of capacity and no tapering is anticipated this month. Stove and machine tool melters are particularly active, although jobbing and automotive foundries are in good operation. The furnace of the Hamilton Coke & Iron Co. was blown out June 3 for a complete overhauling. Operations are expected to be resumed in about 90 days.



NON-FERROUS

... Domestic copper featureless; lead fairly active on basis of June needs.

... Zinc sales show modest gain; prime Western stocks decline.

... Doubts about restriction depress tin.

NEW YORK, June 9.—Excepting disturbances in the tin market, buying of non-ferrous metals continued on an even keel last week, and no change is indicated for the present. Domestic copper sales on Friday aggregated 306 tons, on Saturday 223 tons, and yesterday 868 tons. The total for the month so far is 3600 tons. Receding interest in metal for export set in last week, but today's reports indicate a slight improvement. Sales of this nature are being made on the basis of 9.07½c. to 9.10c. a lb., usual European base ports. The home price for electrolytic copper continues steady at 9.50c. a lb.

Lead

All sellers report a consistent, if not heavy, demand for this product, and moderate sales reflect no change in weekly volume. The price continues firm and unchanged at 4.60c. a lb., New York, and 4.45c., St. Louis. St. Joseph Lead Co., however, continues to find a ready market for certain of its brands in the east at a premium. If feature exists, the fact that current bookings are predominantly for June shipment is worth mentioning.

Zinc

Prime Western sales were again higher last week, as bookings totalled 5238 tons, compared with 4649 tons previously. Shipments came to 4830 tons, and unfilled orders at the week's close totalled 28,020 tons. Sellers state that larger volume of sales ensues as a result of the relatively low level reached by aggregate undelivered contracts. Present prices for zinc remain unchanged at 5.27½c. a lb., New York, and 4.90c., East St. Louis. May statistics revealed production of 44,905 tons exceeding the April figure by 1653 tons.

Shipments rose 1666 tons to 43,977 tons. At the month's close, stocks totalled 81,710 tons, an increase of 928 tons during the period, but the increase was entirely in high grade.

The Week's Prices. Cents Per Pound for Early Delivery

	June 3	June 4	June 5	June 6	June 8	June 9
Electrolytic copper, Conn.*.....	9.50	9.50	9.50	9.50	9.50	9.50
Lake copper, N. Y.....	9.62½	9.62½	9.62½	9.62½	9.62½	9.62½
Straits tin, Spot, New York....	42.75	43.25	43.87½	43.00	43.00	42.50
Zinc, East St. Louis.....	4.90	4.90	4.90	4.90	4.90	4.90
Zinc, New York†.....	5.27½	5.27½	5.27½	5.27½	5.27½	5.27½
Lead, St. Louis.....	4.45	4.45	4.45	4.45	4.45	4.45
Lead, New York.....	4.60	4.60	4.60	4.60	4.60	4.60

*Delivered Connecticut Valley; price ¼c. lower delivered in New York.
†Includes emergency freight charge.

Aluminum, virgin 99 per cent plus, 19.00c.-21.00c. a lb., delivered.
Aluminum, No. 12 remelt, No. 2 standard, in carloads, 17.00c. lb., delivered.
Nickel, electrolytic, 35c. to 36c. a lb. base refinery, in lots of 2 tons or more.
Antimony, Asiatic, 13.50c. a lb., New York.
Quicksilver, \$74.50 to \$75.50 per flask of 76 lb.
Brass ingots, commercial 85-5-5-5, 9.25c. a lb., delivered; in Middle West ¼c. a lb. is added on orders for less than 40,000 lb.

From New York Warehouse

Delivered Prices, Base per Lb.

Tin, Straits pig.....	44.00c. to 45.00c.
Tin, bar.....	46.00c. to 47.00c.
Copper, Lake.....	10.25c. to 11.25c.
Copper, electrolytic.....	10.25c. to 11.25c.
Copper, castings.....	10.00c. to 11.00c.
*Copper sheets, hot-rolled.....	17.00c.
*High brass sheets.....	15.12½c.
*Seamless brass tubes.....	17.37½c.
*Seamless copper tubes.....	17.50c.
*Brass rods.....	13.12½c.
Zinc, slabs.....	5.75c. to 6.75c.
Zinc, sheets (No. 9), casks, 1200 lb. and over.....	10.25c.
Lead, American pig.....	5.10c. to 6.10c.
Lead, bar.....	6.10c. to 7.10c.
Lead, Sheets, cut.....	8.25c.
Antimony, Asiatic.....	14.00c. to 15.00c.
Alum., virgin, 99 per cent plus.....	23.30c.
Alum., No. 1 for remelting, 98 to 99 per cent.....	18.50c. to 20.00c.
Solder, ½ and ½.....	28.50c. to 29.50c.
Babbitt metal, commercial grades.....	25.00c. to 60.00c.

*These prices are also for delivery from Chicago and Cleveland warehouses.

From Cleveland Warehouse

Delivered Prices Per Lb.

Tin, Straits pig.....	48.50c.
Tin, bar.....	50.50c.

Tin

The tin market has been subjected to further assault from European quarters, and with the drying up of demand this week prices have plummeted to a new low level. When last reported spot Straits metal at New York was selling for 44c. a lb., but today's quotation has fallen to 42.50c. The domestic price, of course, has followed the lead of London quotations, in which sector uncertainty over quota arrangements continues and, in a new direction, skepticism has developed as to whether the International Committee will be successful in reestablishing the tin restriction scheme for another year. During the recent weakness, considerable buying developed on the assumption that prices had reached a bottom. During the morning session today of the London Exchange, standard metal sold at £184 10s cash and £182 5s three-months. In the East the price was £187 7s 6d.

Copper, Lake.....10.25c. to 10.50c.

Copper, electrolytic.....10.25c. to 10.50c.

Copper, castings.....10.00c. to 10.25c.

Zinc, slabs.....6.50c. to 6.75c.

Lead, American pig.....5.20c. to 6.50c.

Lead, bar.....8.50c.

Antimony, Asiatic.....15.00c.

Babbitt metal, medium grade.....19.00c.

Babbitt metal, high grade.....52.50c.

Solder, ½ and ½.....26.25c.

Old Metals, Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators, and selling prices are those charged to consumers after the metal has been prepared for their uses (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible.....	7.37½c.	8.12½c.
Copper, hvy. and wire.....	7.25c.	7.75c.
Copper, light and bottoms.....	6.25c.	6.75c.
Brass, heavy.....	4.12½c.	4.75c.
Brass, light.....	3.37½c.	4.12½c.
Hvy. machine composition.....	6.12½c.	6.62½c.
No. 1 yel. brass turnings.....	5.12½c.	5.62½c.
No. 1 red brass or compos. turnings.....	5.75c.	6.25c.
Lead, heavy.....	3.62½c.	4.00c.
Sheet aluminum.....	13.25c.	14.75c.
Zinc.....	2.50c.	2.87½c.
Cast aluminum.....	12.12½c.	13.25c.

Steel Exports Again Rise — Imports Down Fifteen Per Cent

Imports (In Gross Tons)	April		Four Months Ended April	
	1936	1935	1936	1935
Pig iron	11,982	8,247	65,418	23,729
Sponge iron	306	104	1,128	412
Ferromanganese ¹	1,671	5,563	7,172	13,742
Spiegeleisen	2,740	.....	7,500	.....
Ferrosilicon ²	86	80	308	352
Other ferroalloys ³ .....	.....	.....	.....	.....
Scrap	8,549	1,259	30,817	8,816
Pig iron, ferroalloys and scrap	25,334	15,253	112,344	47,053
Steel ingots, blooms, etc.	19	348	61	970
Billets, whether solid or hollow ⁴	64	.....	232	.....
Wire rods	1,597	1,094	6,802	4,702
Semi-finished steel	1,680	1,442	7,095	5,672
Concrete reinforcement bars	202	117	526	318
Hollow steel bars	185	158	654	313
Merchant steel bars	3,302	1,407	12,726	6,690
Iron slabs .....	.....	.....	.....	.....
Iron bars	35	53	423	269
Boiler and other plate .....	.....	37	52	73
Sheets, skelp, and sawplate	2,180	785	7,594	2,074
Die blocks or blanks, etc. ⁵	80	.....	88	.....
Tin plate	30	37	89	83
Structural shapes	5,056	2,228	17,324	9,401
Sheet piling	249	.....	776	.....
Rails and track material	1,720	459	2,571	1,080
Welded pipe	458	83	1,831	379
Other pipe	1,221	396	6,226	3,605
Hoops and bands for baling	29	.....	88	269
Other hoops and bands	2,681	1,491	7,564	6,281
Barbed wire	1,439	1,813	7,593	9,112
Round iron and steel wire	233	339	1,436	1,308
Telegraph and telephone wire	5	3	32	7
Flat wire and steel strips	259	205	943	572
Wire rope and strand	257	189	883	699
Other wire	138	57	554	340
Nails, tacks and staples	2,337	2,211	9,729	5,509
Bolts, nuts and rivets	36	19	139	105
Horse and mule shoes	35	37	123	257
Rolled and finished steel	22,167	12,124	79,964	48,744
Malleable iron pipe fittings	6	.....	17	46
Cast iron pipe and fittings	30	.....	62	.....
Castings and forgings	60	47	362	421
Total	49,277	28,866	199,844	101,936

¹ Manganese Content. ² Chrome Content. ³ Silicon Content. ⁴ Alloy Content. ⁵ New Class. No comparable figures for previous year.

Exports (In Gross Tons)	April		Four Months Ended April	
	1936	1935	1936	1935
Pig iron	215	74	712	756
Ferromanganese and speiegeisen	142	1	150	33
Other ferroalloys ⁵	280	.....	810	.....
Iron and steel scrap	190,845	131,731	650,211	691,419
Tin plate scrap	2,507	2,928	8,825	12,973
Waste-waste tin plate	3,554	2,198	9,287	7,845
Pig iron, ferroalloys and scrap	197,543	136,932	669,995	713,026
Ingots, blooms, billets, sheet bars	2,841	8,283	4,219	24,827
Skelp	3,901	978	7,157	3,512
Wire rods	4,664	1,330	14,431	7,644
Semi-finished steel	11,406	10,591	25,807	35,983
Bars, concrete reinforcement ⁵	303	.....	776	.....
Bars, other steel	4,641	4,134	16,194	18,776
Iron bars	170	90	441	437
Plates, iron and steel	6,889	3,550	20,398	13,238
Sheets, galvanized steel	5,464	5,442	18,936	24,036
Sheets, galvanized iron	58	95	352	.....
Sheets, black steel	12,250	8,471	44,910	34,296
Sheets, black iron	518	716	2,492	1,899
Hoops, bands, strip steel	5,289	3,678	19,214	14,651
Tin plate and taggers' tin	24,886	5,205	79,221	39,603
Terne plate (including long terne)	267	264	1,096	1,021
Structural shapes, plain material	5,282	2,723	16,350	9,696
Structural material, fabricated	2,331	2,348	6,652	7,827
Sheet piling ⁶	167	.....	1,020	.....
Tanks, steel	2,168	257	9,671	2,125
Steel rails	4,996	1,536	21,507	10,447
Rail fastenings, switches, spikes, etc.	934	1,025	3,409	3,242
Boiler tubes	755	1,105	2,090	3,047
Casing and oil line pipe	2,072	1,743	7,260	13,982
Pipe, black and galvanized, welded steel	1,075	3,031	6,589	15,089
Pipe, black and galvanized, welded iron	318	354	1,081	1,375
Plain wire	3,288	2,678	13,787	11,257
Barbed wire and woven wire fencing	3,204	3,085	10,363	10,744
Wire cloth and screening	100	41	333	312
Wire rope	370	424	1,170	1,498
Wire nails	850	938	2,768	3,539
Other nails and tacks	366	269	1,085	1,258
Other wire and manufactures	367	498	1,629	1,762
Bolts, nuts, rivets and washers, except track	561	568	2,010	2,245
Other finished steel	177	127	630	429
Rolled and finished steel	90,116	54,395	313,434	248,344
Cast iron pipe and fittings	1,176	430	4,411	4,814
Malleable iron screwed fittings	325	301	985	1,058
Carwheels and axles	379	1,056	1,734	10,530
Iron castings	381	924	2,732	3,009
Steel castings	338	229	928	944
Forgings	323	483	1,664	2,047
Castings and forgings	2,922	3,423	12,454	22,402
Total	301,987	205,341	1,021,690	1,019,755

APRIL exports of finished and semi-finished steel rose 37,650 tons or 14 per cent over March figures, and were 96,646 tons or 47 per cent higher than in April, 1935. Iron and steel scrap accounted for most of the increase, 27,550 tons more being shipped this month than in March. Skelp and ingots, blooms, billets and sheet bars also showed sizeable advances.

Imports of finished and semi-finished steel, however, are down from last month's figures, 7443 tons, or 15 per cent, less being shipped into this country. The main factor in this reduction was pig iron, 11,761 tons less of which was imported. The pig iron figure represents a 98 per cent decrease from last month's imports, but is 45 per cent greater than in April, last year. The countries whose decreased shipments accounted for this drop were Netherlands and Russia.

Increased importation of iron and manganese ore accounted for a 34 per cent rise over March figures and a 57 per cent increase over April, 1935.

April Imports of Iron and Manganese Ores

(In Gross Tons)		Manganese Concentrates, 35 Per Cent or Over	
Iron Ore		1936	1935
		1936	1935
Canada .....	.....	1	.....
Cuba	34,000	22,000	.....
Chile	109,850	67,025	.....
Spain	148	.....	.....
Norway	22,245	8,900	.....
Sweden .....	.....	.....	.....
French Africa .....	.....	9,300	4,869
Russia .....	.....	.....	7,259
India .....	.....	.....	2,113
Brazil .....	.....	.....	811
West Africa .....	.....	.....	10,716
Other .....	.....	.....	2,219
Countries	10,428	5,390	60
Total	176,671	112,616	18,569

April Imports of Pig Iron by Countries of Origin

(In Gross Tons)		Four Months Ended April	
April		1936	1935
		1936	1935
United Kingdom .....	.....	100	1,082
British India	4,765	1,286	17,957
Germany	160	.....	2,695
Netherlands	1,557	3,281	29,078
Canada	1,058	2,330	2,193
France .....	.....	.....	50
Belgium .....	.....	50	529
Norway	51	1,100	1,058
Sweden .....	.....	100	164
Russia	4,191	.....	10,462
All others	200	.....	200
Total	11,982	8,247	65,418



... Lettings decline to 15,800 tons from 20,350 tons last week.

... New projects in good volume at 23,300 tons as against 11,825 tons a week ago.

NORTH ATLANTIC STATES

Nashua, N. H., 140 tons, beams for stadium, to Phoenix Bridge Co.

Waterbury, Conn., 110 tons, Lux Clock factory, to Joseph T. Ryerson & Son, Inc.

Ansonia, Conn., 245 tons, high school, to Bethlehem Steel Co.

Buffalo, 180 tons, cold storage building, Iroquois brewery, to Ernst Iron Works, Buffalo.

Plattsburg, N. Y., 100 tons, high school, to F. L. Heughes & Co.

Onondaga County, N. Y., 510 tons, highway bridge, to American Bridge Co.

Ossining, N. Y., 185 tons, Roosevelt high school, to Belmont Iron Works.

New York, 330 tons, Consolidated Edison stack supports, East 39th Street, to American Bridge Co.

New York, 360 tons, post office D annex, to Weatherly Steel Co., Weatherly, Pa.

New York, 755 tons, Ruppert brew house, 1639 Third Avenue, to American Bridge Co.

Staten Island, N. Y., 125 tons, power house, Seaview hospital, to Belmont Iron Works.

Staten Island, 675 tons, children's hospital, Castleton Corners, to Dreier Iron Works.

Newark, 135 tons, United Color & Pigment Co., warehouse, to Savary & Glaeser.

Harrison, N. J., 200 tons, town hall, to Oltmer Iron Works.

Erie, Pa., 105 tons, recreation building, St. Mary's church, to Erie Concrete & Steel Supply Co.

Dunmore, Pa., 420 tons, high school, to Anthracite Bridge Co.

Montgomery County, Pa., 360 tons, highway bridge, to Bethlehem Steel Co.

Philadelphia, 100 tons, H beams for Pennsylvania Railroad electrification, to Bethlehem Steel Co.

Cranford, N. J., 400 tons, high school building, to Selbach Meyer Co.

Mount Pocono, Pa., 220 tons, State highway bridge, to American Bridge Co.

Larimer, Pa., 660 tons, highway bridge, to Bethlehem Steel Co.

SOUTH AND SOUTHWEST

Harrison County, W. Va., 355 tons, highway bridge, to American Bridge Co.

Texas City, Tex., 300 tons, pump house for Standard Oil Co., to Bethlehem Steel Co.

Texas City, Tex., 150 tons, power house extension, Pan American Petroleum, to Mosher Steel & Machinery Co.

Panola County, Miss., 125 tons, bridge, to Pidgeon-Thomas Iron Co.

Mesa, Ariz., 105 tons, Boulder Creek State bridge, to Virginia Bridge Co.

Imboden, Ark., 500 tons, bridge, to Muskogee Iron Works.

CENTRAL STATES

Lansing, Mich., 440 tons, buildings for Fisher Body Corp., to Whitehead & Kales Co.

Chicago, 120 tons, Clearing Industrial

District, manufacturing building, to New City Iron Works.

Madison County, Ill., 285 tons, bridge section, to Wisconsin Bridge & Iron Works.

South Chicago, 1800 tons, Wisconsin Steel Co. addition, to Wisconsin Bridge Co.

Jefferson County, Neb., 250 tons, viaduct, to Omaha Steel Works.

Oskaloosa, Iowa, 185 tons, bridge, to Des Moines Structural Steel Co.

Sioux County, Iowa, 190 tons, girder and beam span, to Pittsburgh-Des Moines Steel Co.

Monroe County, Iowa, 150 tons, I-beam span, to Pittsburgh-Des Moines Steel Co.

Madison County, Mo., 140 tons, bridge, to Stupp Brothers Bridge & Iron Co.

Pike County, Mo., 275 tons, bridge, to Illinois Steel Bridge Co.

Bollinger County, Mo., 155 tons, highway bridge, to Stupp Brothers Bridge & Iron Co.

Kansas City, Mo., 430 tons, 50th Street viaduct, to Kansas City Structural Steel Co.

Chase County, Kan., 110 tons, bridge, to Kansas City Structural Steel Co.

Douglas County, Kan., 390 tons, bridge, to St. Joseph Structural Steel Co.

WESTERN STATES

Edlow, Colo., 1100 tons, South Catamount Creek dam, to American Bridge Co.

Laramie, Wyo., 200 tons, girder and I-beam span, to Midwest Steel & Iron Co.

Morriscroft, Wyo., 125 tons, truss span, to Minneapolis-Moline Power & Implement Co.

Rivera, Cal., 160 tons, undergrade crossing, to Virginia Bridge Co.

Los Angeles County, Cal., 260 tons, Inglewood Boulevard bridge, to Ingalls Iron Works Co.

Mount Palomar, Cal., 535 tons, lower part of dome building for 200-in. telescope, to Consolidated Steel Corp.

Los Angeles, 165 tons, Budlong Avenue school, to Bethlehem Steel Co.

Los Angeles, 300 tons, third sound stage for Twentieth Century-Fox Film Corp., to Consolidated Steel Corp.

San Francisco, 150 tons, hopper dredge for United States Engineers, to Bethlehem Shipbuilding Corp.

Oceanside, Cal., 622 tons, State bridge over Santa Margarita River, to Columbia Steel Co., previously reported to Virginia Bridge Co.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

Boston, 100 tons, Automatic Fire Alarm Co., office building.

Old Greenwich, Conn., 300 tons, factory for Electrolux Co.

New York, 4700 tons, roof covering, New York Central Railroad, West 111th to West 121st Streets.

Syracuse, N. Y., 500 tons, New York Central grade crossing.

Whitesboro, N. Y., 1200 tons, school building program; bids June 23.

State of New York, 390 tons, bridges; Ontario County, 140 tons; Schenectady County, 100 tons; St. Lawrence County, 150 tons; bids June 16.

Orangeburg, N. Y., 1600 tons, Rockland State hospital.

Union and Mercer Counties, N. J., 500 tons, grade eliminations; bids June 22.

State of Pennsylvania, 530 tons, four highway bridges.

Pittsburgh, 500 tons, blast furnace stoves.

Erie County, Pa., 100 tons, bridge; bids June 19.

Lancaster, Pa., 200 tons, high school; bids June 22.

Cumberland, Md., 150 tons, warehouse for the Bernstein Furniture Co.

THE SOUTH

Romney, W. Va., 675 tons, bridge.

State of Texas, 3300 tons, bridges.

CENTRAL STATES

Franklin County, Ohio, 680 tons, Chesapeake & Ohio and Pennsylvania grade crossing eliminations and other bridges.

Butler County, Ohio, 156 tons, highway bridge.

State of Ohio, 1130 tons, six highway bridges.

Dayton, Ohio, 200 tons, dining hall, National Cash Register Co.

Decatur, Ill., 200 tons, refinery building for Staley Co.

Franklin County, Ill., 125 tons, highway bridge; bids June 12.

State of Illinois, 1000 tons, bridges.

Peoria, Ill., 600 tons, locks.

Janesville, Wis., 500 tons, addition to Chevrolet assembly plant.

Lynxville, Wis., 1500 tons, dam across Mississippi River.

Hardtner, Kan., 800 tons, bridge.

WESTERN STATES

Bonner, Mont., 152 tons, State bridge over Blackfoot River; bids June 16.

Niles, Cal., 675 tons, bridge.

Lake County, Colo., 145 tons, State overpass and bridge; bids June 16.

San Bernardino, Cal., 220 tons, auditorium at San Bernardino Valley Union Junior College; Western Iron & Steel Co., low bidder.

Los Angeles, 450 tons, five traveling cranes for Metropolitan Water District; bids June 19.

FABRICATED PLATES

AWARDS

Colorado Springs, Colo., 1090 tons, gravel dam plate work, to American Bridge Co.

Seattle, 100 tons, tanks for steamship Mazama, to Commercial Boiler Works.

San Francisco, 300 tons, hopper dredge for United States Engineers, to Bethlehem Shipbuilding Co.

Hollywood, Cal., 200 tons, two sound stages for Twentieth Century-Fox Film Corp., to an unnamed bidder.

Los Angeles, 7780 tons, 36-in. welded steel pipe for Department of Water and Power for Stone Canyon pipe line, to Emsco Derrick & Equipment Co.

NEW PROJECTS

Denver, 442 tons, extensions to city water system; bids June 16.

Denver, 125 tons, five gates for Cle Elum dam; bids opened.

SHEET PILING

AWARDS

Potholes, Cal., 530 tons, All-American Canal project, to Bethlehem Steel Co.

Potholes, 260 tons, All-American Canal project, to Inland Steel Co.

NEW PROJECTS

Michigan City, Ind., 1000 tons, for Northern Indiana Public Service Co.

Chicago, 280 tons, dock for Santa Fe Railroad.

Clarksville, Mo., 350 tons, lock No. 24 on Mississippi River.

IRON AND STEEL SCRAP



... Composite declines 25c. to \$12.67, lowest point since Nov. 5, 1935.

o o o

... Pittsburgh mills purchase about 10,000 tons of No. 1; railroad lists are bid in at about \$14.

o o o

... Dull market will probably prevail during the summer.

JUNE 9.—With the exception of Pittsburgh, markets all over the country are hesitant and for the most part inactive. This inactivity is reflected in an almost complete absence of price changes, which results from the lack of test sales on which to base quotations. For the most part, the scrap trade is reconciled to the prospect of a listless buyers' market through the summer months.

Moderate orders from two Pittsburgh mills injected a little life into that dull market for a few days and served to establish the price on heavy melting steel 75c. lower, thereby driving the composite scrap price down 25c. to \$12.67. This latter level is the lowest average for scrap since Nov. 5, 1935. The composite a year ago today stood at \$10.71.

Pittsburgh

Two large consumers have purchased heavy melting steel within the past week at \$13.50. Between 8000 and 10,000 tons was involved on these two orders. The two purchases are the first large ones to be made in several weeks, and both buyers have now withdrawn from the market. Previous to these sales the Baltimore & Ohio and the Pennsylvania Railroad lists went for around \$14, and since railroad steel as a rule carries a premium, these purchases established the market at \$13.50. In view of an expanding ingot rate, the weakness over the past several weeks in scrap is not readily explainable. However, it is thought that the mills over-bought earlier in the year, and also in some cases have increased the percentage of hot metal in their heats.

Chicago

Activity centers in the efforts of dealers and brokers to work out high

priced orders as early as possible. Except for a few carloads of foundry grades there is no activity among consumers, who are still in the frame of mind where they want to bargain with sellers. Consumption at steel mills is very high and although the market now appears weak in spots there are brokers who believe that before their low priced orders are reached there may be an upswing in prices. Brokers are now paying \$13.50 a ton for good industrial scrap which is being applied against high-priced orders.

Cleveland

No new consumer demand developed the past week to test prices, which are unchanged, although the tone of the market is not firm. Dealers are quite busy in covering against recent orders, particularly for blast furnace grades. A slight tightening in the supply of borings and turnings for blast furnace use is noticeable, and brokers are paying around \$8.25 for these grades.

Philadelphia

Dealer offerings are far in excess of district consumers' requirements; consequently brokers continue a strict regulation of shipments on what few old orders they still have on books. A little No. 1 is going to Eddystone and some No. 2 to Conshohocken, but otherwise the market is enlivened by only very occasional carlots on unimportant orders. Bethlehem is constantly in the market for direct purchases for every district plant, and, in many cases, it is able to dictate its own price. Brokers here are looking forward to a listless market over the summer months, but they are confident that the market will be firmly under their control by late fall.

Buffalo

The market is definitely softer. Dealers are inclined to believe that the present activity of mills is due

largely to orders received in anticipation of second quarter price advances in steel, and that towards the end of the month activity may slope off sharply. It is understood that No. 1 steel in the New York Central and Erie lists was bid in at \$13.50.

Boston

Both domestic and export scrap markets are quiet, but indications are that export business will pick up both here and at Providence before the close of the month. Consumer releases on bundled skeleton anticipated June 4 did not come through, whereupon the price has dropped 50c a ton. The market for steel turnings, Pittsburgh district delivery, also is easier.

New York

A slightly stronger market undertone is in evidence, although prices are currently unaltered. Few sales have been made, but it is expected that within the next few weeks more buying interest will be in evidence which in turn should bolster prices. General opinion is that Pennsylvania mills which have not been purchasing the past few weeks, will, in the face of rising or continued operations, be forced to enter the market to a modest degree to meet their requirements.

Detroit

This market is currently very quiet. Prices are practically stabilized at present levels, and what few changes that have taken place are merely adjustments. No great change is looked for throughout the summer.

St. Louis

With the expectation that nearby mills will enter the market for scrap within the next few weeks, dealers are merely marking time. Offerings from the country dealers are lighter. Prices are nominally unchanged, but the undertone is stronger. The Missouri Pacific is offering 70 carloads.

Cincinnati

This market is sluggish. Small sales to cover urgent needs constitute current business. Mills, reporting heavy raw material inventories, refuse to contract for future requirements. Reported weakness of prices in other areas is restraining dealer speculation, although bids in this market are unchanged.

San Francisco

The scrap market on the West Coast is in a healthy condition despite the fact that stocks in dealers' yards are limited. Prices, however, appear to be weakening and a small drop in the next 30 days would not be surprising. Exports of scrap are well below those of last year and shipments of seasonal crops and general increases in freight loadings may take the Japanese buyer out of the market temporarily.

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered consumers' yards:	
No. 1 hvy. mltng. steel.	\$13.00 to \$13.50
No. 2 hvy. mltng. steel.	12.00 to 12.50
No. 2 RR. wrought.	13.00 to 13.50
Scrap rails	13.50 to 14.00
Rails, 3 ft. and under.	16.00 to 16.50
Comp. sheet steel.	13.00 to 13.50
Hand bundled sheets.	12.00 to 12.50
Hvy. steel axle turn.	11.50 to 12.00
Machine shop turn.	9.00 to 9.50
Short shov. turn.	9.25 to 9.75
Mixed bor. turn.	7.75 to 8.25
Cast iron borings.	10.00 to 10.50
Cast iron carwheels.	13.50 to 14.00
Hvy. breakable cast.	12.50 to 13.00
No. 1 cast	14.50 to 15.00
R.R. knuckles & cplrs.	16.50 to 17.00
Rail. coll & leaf springs	16.50 to 17.00
Rolled steel wheels.	16.50 to 17.00
Low phos. billet crops.	17.50 to 18.00
Low phos. sh. bar.	17.00 to 17.50
Low phos. punchings.	16.25 to 16.75
Low phos. plate scrap.	16.00 to 16.50
Steel car axles	15.50 to 16.00

CLEVELAND

Per gross ton delivered consumers' yards:	
No. 1 hvy. mltng. steel.	\$13.00 to \$13.50
No. 2 hvy. mltng. steel.	12.00 to 12.50
Comp. sheet steel	12.00 to 12.50
Light bund. stampings	9.00 to 9.50
Drop forge flashings.	12.00 to 12.50
Machine shop turn.	7.50 to 8.00
Short shov. turn.	8.00 to 8.50
No. 1 busheling	12.00 to 12.50
Steel axle turnings.	12.00 to 12.50
Low phos. billet crops	17.00 to 17.50
Cast iron borings.	8.00 to 8.50
Mixed bor. & turn.	8.00 to 8.50
No. 2 busheling	8.00 to 8.50
No. 1 cast	14.50 to 15.00
Railroad grate bars.	8.00 to 8.50
Stove plate	9.00 to 9.50
Rails under 3 ft.	16.00 to 16.50
Rails for rolling	16.50 to 17.00
Railroad malleable	17.00 to 17.50
Cast iron carwheels.	15.50

PHILADELPHIA

Per gross ton delivered consumers' yards:	
No. 1 hvy. mltng. steel.	\$12.00
No. 2 hvy. mltng. steel.	11.00
Hydraulic bund., new.	12.00 to 12.50
Hydraulic bund., old.	9.00 to 9.50
Steel rails for rolling.	15.00 to 15.50
Cast iron carwheels.	13.50 to 14.00
Hvy. breakable cast.	12.50 to 13.00
No. 1 cast	13.50 to 14.00
Stove plate (steel wks.)	10.00 to 10.50
Railroad malleable	16.50
Machine shop turn.	8.00 to 8.50
No. 1 blast furnace.	6.25
Cast borings	6.00
Heavy axle turnings.	11.00 to 11.50
No. 1 low phos. hvy.	16.00 to 16.50
Couplers & knuckles.	16.00 to 16.50
Rolled steel wheels.	16.00 to 16.50
Steel axles	16.00 to 16.50
Shafting	18.50 to 19.00
No. 1 RR. wrought.	14.50 to 15.00
Spec. iron & steel pipe	12.00 to 12.50
Bundled sheets	12.50 to 13.50
No. 1 forge fire	12.50 to 13.50
Cast borings (chem.)	10.50 to 13.00

CHICAGO

Delivered Chicago district consumers:

Per Gross Ton	
Hvy. mltng. steel.	\$12.50 to \$13.00
Auto. hvy. mltng. steel	11.00 to 11.50
Shoveling steel	12.50 to 13.00
Hydraul. comp. sheets.	11.50 to 12.00
Drop forge flashings.	11.50 to 12.00
No. 1 busheling	11.50 to 12.00
Rolled carwheels	14.00 to 14.50
Railroad tires cut	14.00 to 14.50
Railroad leaf springs.	14.00 to 14.50
Axle turnings	12.00 to 12.50
Steel coup. & knuckles	14.00 to 14.50
Coil springs	15.00 to 15.50
Axle turn. (elec.)	12.75 to 13.25
Low phos. punchings.	14.50 to 15.00
Low phos. plates, 12 in. and under	15.00 to 15.50
Cast iron borings	6.00 to 6.50
Short shov. turnings.	6.25 to 6.75
Machine shop turn.	5.50 to 6.00
Rerolling rails	14.00 to 14.50
Steel rails under 3 ft.	14.75 to 15.25
Steel rails under 2 ft.	15.25 to 15.75
Angle bars, steel	14.50 to 15.00
Cast iron carwheels	13.50 to 14.00
Railroad malleable	15.50 to 16.00
Agric. malleable	13.50 to 14.00

Per Net Ton

Iron car axles	\$17.50 to \$18.00
Steel car axles	14.25 to 14.75
No. 1 RR. wrought.	11.50 to 12.00
No. 2 RR. wrought.	11.00 to 11.50

No. 2 busheling, old.	\$7.50 to \$8.00
Locomotive tires	12.00 to 12.50
Pipes and flues	8.00 to 8.50
No. 1 machinery cast.	12.00 to 12.50
Clean auto. cast	11.00 to 11.50
No. 1 railroad cast.	11.00 to 11.50
No. 1 agric. cast.	10.00 to 10.50
Stove plate	7.00 to 7.50
Grate bars	8.50 to 9.00
Brake shoes	8.50 to 9.00

BUFFALO

Per gross ton, f.o.b. consumers' plants:

No. 1 hvy. mltng. steel.	\$12.50 to \$13.00
No. 2 hvy. mltng. steel.	11.00 to 11.50
Scrap rails	12.00 to 12.50
New hy. b'nded sheets	11.00 to 11.50
Old hydraul. bundles.	10.00 to 10.50
Drop forge flashings.	11.00 to 11.50
No. 1 busheling	11.00 to 11.50
Hvy. axle turnings.	11.50 to 12.00
Machine shop turn.	6.50 to 7.00
Knuckles & couplers.	15.50 to 16.00
Coil & leaf springs.	15.50 to 16.00
Rolled steel wheels.	15.50 to 16.00
Low phos. billet crops	16.00 to 16.50
Short shov. turnings.	9.00 to 9.50
Mixed bor. & turn.	7.75 to 8.25
Cast iron borings.	7.75 to 8.25
No. 2 bushelings	6.50
Steel car axles	13.50 to 14.00
Iron axles	12.00 to 12.50
No. 1 machinery cast.	13.00 to 13.50
No. 1 cupola cast.	12.00 to 12.50
Stove plate	10.50 to 11.00
Steel rails, under 3 ft.	15.75 to 16.25
Cast iron carwheels.	11.50 to 12.00
Railroad malleable	16.25 to 16.75
Chemical borings	9.00 to 9.50

BIRMINGHAM

Per gross ton delivered consumers' yards:

Hvy. melting steel.	\$11.00 to \$11.50
Scrap steel rails.	11.50 to 12.00
Short shov. turnings.	7.00
Stove plates	8.00
Steel axles	12.00 to 12.50
Iron axles	12.00 to 12.50
No. 1 RR. wrought.	8.50 to 9.00
Rails for rolling	12.50 to 13.00
No. 1 cast	12.00 to 12.50
Tramcar wheels	11.00 to 12.00

ST. LOUIS

Dealers' buying prices per gross ton delivered consumers' works:

Selected hvy. steel.	\$12.00 to \$12.50
No. 1 hvy. melting.	12.00 to 12.50
No. 2 hvy. melting.	10.00 to 10.50
No. 1 locomotive tires.	11.00 to 11.50
Misc. stand-sec. rails.	12.50 to 13.00
Railroad springs	13.50 to 14.00
Bundled sheets	9.50 to 10.00
No. 2 RR. wrought.	12.00 to 12.50
No. 1 busheling	7.50 to 8.00
Cast bor. & turn.	4.00 to 4.50
Rails for rolling	13.50 to 14.00
Machine shop turn.	4.00 to 4.50
Heavy turnings	9.25 to 9.75
Steel car axles	13.00 to 13.50
Iron car axles	15.00 to 16.00
No. 1 RR. wrought.	10.50 to 11.00
Steel rails under 3 ft.	13.50 to 14.00
Steel angle bars	12.75 to 13.25
Cast iron carwheels.	11.00 to 11.50
No. 1 machinery cast.	11.00 to 11.50
Railroad malleable	13.50 to 14.00
No. 1 railroad cast.	11.00 to 11.50
Stove plate	7.50 to 8.00
Agricul. malleable	12.50 to 13.00

CINCINNATI

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	\$10.00 to \$10.50
No. 2 hvy. mltng. steel.	8.00 to 8.50
Scrap rails for mltng.	10.50 to 11.00
Loose sheet clippings.	5.75 to 6.25
Bundled sheets	7.75 to 8.25
Cast iron borings	5.00 to 5.50
Machine shop turn.	5.75 to 6.25
No. 1 busheling	8.50 to 9.00
No. 2 busheling	4.25 to 4.75
Rails for rolling	11.00 to 11.50
No. 1 locomotive tires	9.50 to 10.00
Short rails	14.00 to 14.50
Cast iron carwheels	10.50 to 11.00
No. 1 machinery cast.	11.50 to 12.00
No. 1 railroad cast.	10.75 to 11.25
Burnt cast	7.75 to 8.25
Stove plates	7.75 to 8.25
Agricul. malleable	9.75 to 10.25
Railroad malleable	11.50 to 12.00

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	\$9.50 to \$10.00
No. 2 hvy. mltng. steel.	8.50 to 9.00
Borings and turnings.	5.50 to 6.00
Long turnings	5.50 to 6.00
Short shov. turnings.	6.00 to 6.50
No. 1 machinery cast.	14.50 to 15.00

Automotive cast	\$13.25 to \$13.75
Hydraul. comp. sheets	9.75 to 10.25
Stove plate	8.75 to 9.25
New factory bushel.	9.00 to 9.50
Old No. 2 busheling.	5.00 to 5.50
Sheet clippings	6.50 to 7.00
Flashings	8.50 to 9.00
Low phos. plate scrap	10.00 to 10.50

CANADA

Dealers' buying prices per gross ton:

	Toronto	Mon-treal
Hvy. melting steel.	\$7.50	\$7.00
Rails, scrap	8.50	8.00
Machine shop turn.	4.00	4.00
Boiler plate	7.00	6.00
Hvy. axle turnings.	4.50	4.00
Cast borings	5.00	4.50
Steel borings	4.00	4.00
Wrought pipe	4.00	4.00
Steel axles	8.50	9.00
Axles, wrought iron.	9.00	9.50
No. 1 machinery cast.	11.50	11.00
Stove plate	7.50	7.00
Standard carwheels	11.00	10.50
Malleable	7.00	7.00
Shoveling steel	6.50	6.00
Bushelings	6.00	5.50
Compressed sheets	6.50	6.00

YOUNGSTOWN

Per gross ton delivered consumers' yards:

No. 1 hvy. mltng. steel.	\$14.25 to \$14.75
Hydraulic bundles	14.00 to 14.25
Machine shop turn.	9.75 to 10.25

NEW YORK

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	\$8.75 to \$9.25
No. 2 hvy. mltng. steel.	7.50 to 8.00
Hvy. breakable cast.	8.00 to 8.50
No. 1 machinery cast.	9.00 to 9.50
No. 2 cast	7.75 to 8.25
Stove plate	6.75 to 7.25
Steel car axles	13.00 to 13.50
Shafting	14.00 to 14.50
No. 1 RR. wrought.	9.00 to 9.50
No. 1 wrought long.	8.50 to 9.00
Spec. iron & steel pipe	8.50 to 9.00
Forge fire	7.50 to 8.00
Rails for rolling.	10.50 to 11.00
Short shov. turnings.	5.00 to 5.50
Machine shop turn.	4.50 to 5.00
Cast borings	4.50 to 5.00
No. 1 blast furnace.	3.00 to 3.50
Cast borings (chem.)	9.50 to 10.50
Unprepar. yard scrap.	5.00 to 5.50

Per gross ton, delivered local foundries:

No. 1 machin. cast.	\$11.50
No. 1 hvy. cast cupola.	9.50
No. 2 cast	8.00

Add 50c. to 75c. to above quotations to secure North Jersey prices.

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	\$9.15 to \$9.40
Scrap rails	9.15 to 9.40
No. 2 steel	8.50 to 8.75
Breakable cast	8.00 to 8.25
Machine shop turn.	3.25 to 3.50
Bund. skeleton, long.	6.05
Shafting	13.50 to 13.75
Cast bor. chemical.	5.00 to 7.00
Cotton ties	5.75 to 6.00

Per gross ton delivered consumers' yards:

Textile cast	\$10.50 to \$11.00
No. 1 machin. cast.	10.50 to 11.00
Stove plate	9.00

EXPORT

Brokers' buying prices per gross ton:

New York, delivered alongside barges	
No. 1 hvy. mltng. steel.	\$9.50
No. 2 hvy. mltng. steel.	8.50
No. 2 cast	\$8.00 to 8.50
Stove plate	7.00 to 7.25
Rails (scrap)	10.50 to 11.00

Philadelphia, on cars at

Port Richmond

No. 1 heavy melting steel.	\$11.00
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Boston, on cars at Army Base or Mystic Wharf

No. 1 hvy. mltng. steel.	\$10.50
No. 2 hvy. mltng. steel.	9.50
Rails (scrap)	10.50
Stove plate	7.50

New Orleans, on cars at

Stuyvesant Dock

No. 1 hvy. mltng. steel.	\$10.00 to \$10.50
No. 2 hvy. mltng. steel.	9.00 to 9.50

Los Angeles, on cars or trucks at local piers

No. 1 hvy. mltng. steel.	\$10.50 to \$11.00
Compressed bundles	8.50 to 9.00

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham. Prices at Duluth are \$2 a ton higher, and delivered Detroit \$3 higher.

Per Gross Ton

Rerolling\$28.00
Forging quality 35.00

Sheet Bars

F.o.b. Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

Per Gross Ton

Open-hearth or Bessemer\$28.00

Skelp

F.o.b. Pittsburgh, Chicago, Youngstown, Buffalo, Coatesville, Pa., Sparrows Point, Md.

Per Lb.

Grooved, universal and sheared 1.80c.

Wire Rods

(Nos. 4 and 5)

Per Gross Ton

F.o.b. Pittsburgh or Cleveland.\$38.00
F.o.b. Chicago, Youngstown or Anderson, Ind. 39.00
F.o.b. Worcester, Mass. 40.00
F.o.b. Birmingham 41.00
F.o.b. San Francisco 47.00
F.o.b. Galveston 44.00

BARs, PLATES, SHAPES

Iron and Steel Bars

Soft Steel

Base per Lb.

F.o.b. Pittsburgh1.85c.
F.o.b. Chicago or Gary1.90c.
F.o.b. Duluth2.00c.
Del'd Detroit2.00c.
F.o.b. Cleveland1.90c.
F.o.b. Buffalo1.95c.
Del'd Philadelphia2.16c.
Del'd New York2.20c.
F.o.b. Birmingham2.00c.
F.o.b. cars dock Gulf ports...2.25c.
F.o.b. cars Pacific ports.....2.40c.

Rail Steel

(For merchant trade)

F.o.b. Pittsburgh1.70c.
F.o.b. Cleveland, Chicago, Gary or Moline, Ill.1.75c.
F.o.b. Buffalo1.80c.
F.o.b. Birmingham1.85c.
F.o.b. cars dock Gulf ports...2.10c.
F.o.b. cars dock Pacific ports..2.25c.

Billet Steel Reinforcing

(Straight lengths as quoted by distributors)

F.o.b. Pittsburgh2.05c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham2.10c.
Del'd Detroit2.20c.
F.o.b. cars dock Gulf ports...2.45c.
F.o.b. cars dock Pacific ports..2.45c.

Rail Steel Reinforcing

(Straight lengths as quoted by distributors)

F.o.b. Pittsburgh1.90c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham1.95c.
F.o.b. cars dock Gulf ports...2.30c.
F.o.b. cars dock Pacific ports..2.30c.

Iron

F.o.b. Chicago1.80c.
F.o.b. Pittsburgh (refined)....2.10c.
Delivered New York2.05c.
Delivered Philadelphia2.10c.

Cold Finished Bars and Shafting*

Base per Lb.

F.o.b. Pittsburgh2.10c.
F.o.b. Cleveland, Chicago and Gary2.15c.
F.o.b. Buffalo2.20c.
Del'd Detroit2.30c.
Del'd eastern Michigan.....2.35c.

*In quantities of 10,000 to 19,999 lb.

Plates

Base per Lb.

F.o.b. Pittsburgh1.80c.
F.o.b. Chicago or Gary1.85c.
Del'd Cleveland1.95c.
F.o.b. Coatesville or Spar. Pt.1.90c.
Del'd Philadelphia1.99c.
Del'd New York2.09c.
F.o.b. Birmingham1.95c.
F.o.b. cars dock Gulf ports...2.20c.
F.o.b. cars dock Pacific ports..2.35c.
Wrought iron plates, f.o.b. Pittsburgh3.20c.

Floor Plates

F.o.b. Pittsburgh3.35c.
F.o.b. Chicago3.40c.
F.o.b. Coatesville3.45c.
F.o.b. cars dock Gulf ports...3.75c.
F.o.b. cars dock Pacific ports..3.90c.

Structural Shapes

Base per Lb.

F.o.b. Pittsburgh1.80c.
F.o.b. Chicago1.85c.
Del'd Cleveland1.95c.
F.o.b. Buffalo or Bethlehem...1.90c.
Del'd Philadelphia2.015c.
Del'd New York2.0625c.
F.o.b. Birmingham (standard)1.95c.
F.o.b. cars dock Gulf ports ...2.20c.
F.o.b. cars dock Pacific ports..2.35c.

Steel Sheet Piling

Base per Lb.

F.o.b. Pittsburgh2.15c.
F.o.b. Chicago or Buffalo.....2.25c.
F.o.b. cars dock Gulf or Pacific Coast ports2.60c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb. per gross ton.....\$36.37½
Angle bars, per 100 lb. 2.55

F.o.b. Code Basing Points

Light rails (from billets) per gross ton\$35.00
Light rails (from rail steel) per gross ton 34.00

Base per 100 Lb.

Spikes 2.60
Tie plates, steel 1.90
Tie plates, Pacific Coast ports.. 2.00
Track bolts, to steam railroads.. 3.60
Track bolts, to jobbers, all sizes (per 100 counts) 70 per cent off list

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Buffalo, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports: on tie plates alone, Steelton Pa.; on spikes alone, Cleveland, Youngstown, Lebanon, Pa., Columbia, Pa., Richmond, Va.

SHEETS, STRIP, TIN PLATE,

TERNE PLATE

Sheets

Hot Rolled

Base per Lb.

No. 10, f.o.b. Pittsburgh1.85c.
No. 10, f.o.b. Gary1.95c.
No. 10, del'd Detroit2.05c.
No. 10, del'd Philadelphia2.16c.
No. 10, f.o.b. Birmingham2.00c.
No. 10, f.o.b. cars dock Pacific ports2.40c.

Hot-Rolled Annealed

No. 24, f.o.b. Pittsburgh2.40c.
No. 24, f.o.b. Gary2.50c.
No. 24, del'd Detroit...2.45c. to 2.60c.
No. 24, del'd Philadelphia2.71c.

No. 24, f.o.b. Birmingham.....2.55c.
No. 24, f.o.b. cars dock Pacific ports3.05c.
No. 24, wrought iron, Pittsburgh4.30c.

Heavy Cold-Rolled

No. 10 gage, f.o.b. Pittsburgh...2.50c.
No. 10 gage, f.o.b. Gary2.60c.
No. 10 gage, f.o.b. Detroit.....2.70c.
No. 10 gage, del'd Philadelphia.2.81c.
No. 10 gage, f.o.b. Birmingham.2.65c.
No. 10 gage, f.o.b. cars dock Pacific ports3.10c.

Light Cold-Rolled

No. 20 gage, f.o.b. Pittsburgh..2.95c.
No. 20 gage, f.o.b. Gary3.05c.
No. 20 gage, del'd Detroit.....3.15c.
No. 20 gage, del'd Philadelphia..3.26c.
No. 20 gage, f.o.b. Birmingham.3.10c.
No. 20 f.o.b. cars dock Pacific ports3.50c.

Galvanized Sheets

No. 24 gage, f.o.b. Pittsburgh...3.10c.
No. 24, f.o.b. Gary3.20c.
No. 24, del'd Philadelphia3.41c.
No. 24, f.o.b. Birmingham3.25c.
No. 24, f.o.b. cars dock Pacific ports3.70c.
No. 24, wrought iron, Pittsburgh4.95c.

Long Ternes

No. 24, unassorted 8-lb. coating f.o.b. Pittsburgh3.40c.
F.o.b. Gary3.50c.
F.o.b. cars dock Pacific ports..4.10c.

Vitreous Enameling Stock

No. 20, f.o.b. Pittsburgh2.95c.
No. 20, f.o.b. Gary3.05c.
No. 20, f.o.b. Birmingham3.55c.
No. 20, f.o.b. cars dock Pacific ports3.55c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh2.75c.
No. 28, Gary2.85c.
No. 28, cars dock Pacific ports.3.35c.

Tin Plate

Base per Box

Standard cokes, f.o.b. Pittsburgh district mill\$5.25
Standard cokes, f.o.b. Gary..... 5.35
Standard cokes, f.o.b. cars dock Pacific ports 5.90

Terne Plate

(F.o.b. Pittsburgh)

(Per Package, 20 x 28 in.)

8-lb. coating I.C.....\$10.00
15-lb. coating I.C..... 12.00
20-lb. coating I.C..... 13.00
25-lb. coating I.C..... 14.00
30-lb. coating I.C..... 15.25
40-lb. coating I.C..... 17.50

Hot-Rolled Hoops, Bands, Strips and Flats under ¼ in.

Base per Lb.

All widths up to 24 in., P'gh...1.85c.
All widths up to 24 in., Chicago.1.95c.
All widths up to 24 in., del'd Detroit2.05c.
All widths up to 24 in., Birmingham2.00c.
Cooperage stock, Pittsburgh ..1.95c.
Cooperage stock, Chicago2.05c.

Cold-Rolled Strips*

Base per Lb.

F.o.b. Pittsburgh2.60c.
F.o.b. Cleveland2.60c.
Del'd Chicago2.895c.
F.o.b. Worcester2.80c.

*Carbon 0.25 and less.

Fender Stock

No. 14, Pittsburgh or Cleveland.2.90c.
No. 14, Worcester3.30c.
No. 20, Pittsburgh or Cleveland.3.30c.
No. 20, Worcester3.70c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh and Cleveland.)

To Manufacturing Trade

Per Lb.

Bright wire 2.40c.
Spring wire 3.05c.

Chicago prices on products sold to the manufacturing trade are \$1 a ton above Pittsburgh or Cleveland. Worcester and Duluth prices are \$2 a ton above, Birmingham \$3 above, and Pacific Coast prices \$9 a ton above Pittsburgh or Cleveland.

To the Trade

Base per Keg

Standard wire nails \$2.10
Smooth coated nails 2.10

Base per 100 Lb.

Annealed fence wire \$2.65
Galvanized fence wire 3.00
Polished staples 2.80
Galvanized staples 3.05
Barbed wire, galvanized 2.60
Twisted barless wire 2.60
Woven wire fence, base column 58
Single loop bale ties, base column 51

Chicago and Anderson, Ind., mill prices are \$1 a ton over Pittsburgh base (on all products except woven wire fence, for which the Chicago price is \$2 above Pittsburgh); Duluth, Minn., mill prices are \$2 a ton over Pittsburgh except for woven wire fence, which is \$3 over Pittsburgh and Birmingham mill prices are \$3 a ton over Pittsburgh.

On wire nails, barbed wire and staples, prices at Houston, Galveston and Corpus Christi, Tex., New Orleans, Lake Charles, La., and Mobile, Ala., are \$6 a ton over Pittsburgh.

On nails, staples and barbed wire, prices of \$6 a ton above Pittsburgh are also quoted at Beaumont and Orange, Tex.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh
District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

In.	Steel Black Galv.	In.	Wrought Iron Black Galv.
1/4	57	37	57
1/2	60	44 1/2	60
3/4	64 1/2	55	64 1/2
1	67 1/2	59	67 1/2
1 1/4	69 1/2	61 1/2	69 1/2

Lap Weld

In.	Steel Black Galv.	In.	Wrought Iron Black Galv.
2	62	53 1/2	62
2 1/2	65	56 1/2	65
3	67	58 1/2	67
3 1/2	69	60 1/2	69
4	71	62 1/2	71
4 1/2	73	64 1/2	73
5	75	66 1/2	75
5 1/2	77	68 1/2	77
6	79	70 1/2	79
6 1/2	81	72 1/2	81
7	83	74 1/2	83
7 1/2	85	76 1/2	85
8	87	78 1/2	87
8 1/2	89	80 1/2	89
9	91	82 1/2	91
9 1/2	93	84 1/2	93
10	95	86 1/2	95
10 1/2	97	88 1/2	97
11	99	90 1/2	99
11 1/2	101	92 1/2	101
12	103	94 1/2	103
12 1/2	105	96 1/2	105

Butt Weld, extra strong, plain ends
1/4 55 1/2 42 1/2
1/2 57 1/2 44 1/2
3/4 62 1/2 54 1/2
1 66 1/2 58 1/2
1 1/4 68 61

Lap Weld, extra strong, plain ends
2 60 52 1/2
2 1/2 64 56 1/2
3 67 1/2 60
3 1/2 70 63 1/2
4 73 66 1/2
4 1/2 76 69 1/2
5 79 72 1/2
5 1/2 82 75 1/2
6 85 78 1/2
6 1/2 88 81 1/2
7 91 84 1/2
7 1/2 94 87 1/2
8 97 90 1/2
8 1/2 100 93 1/2
9 103 96 1/2
9 1/2 106 99 1/2
10 109 102 1/2
10 1/2 112 105 1/2
11 115 108 1/2
11 1/2 118 111 1/2
12 121 114 1/2
12 1/2 124 117 1/2
13 127 120 1/2
13 1/2 130 123 1/2
14 133 126 1/2
14 1/2 136 129 1/2
15 139 132 1/2
15 1/2 142 135 1/2
16 145 138 1/2
16 1/2 148 141 1/2
17 151 144 1/2
17 1/2 154 147 1/2
18 157 150 1/2
18 1/2 160 153 1/2
19 163 156 1/2
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20 169 162 1/2
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21 175 168 1/2
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22 181 174 1/2
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23 187 180 1/2
23 1/2 190 183 1/2
24 193 186 1/2
24 1/2 196 189 1/2
25 199 192 1/2
25 1/2 202 195 1/2
26 205 198 1/2
26 1/2 208 201 1/2
27 211 204 1/2
27 1/2 214 207 1/2
28 217 210 1/2
28 1/2 220 213 1/2
29 223 216 1/2
29 1/2 226 219 1/2
30 229 222 1/2
30 1/2 232 225 1/2
31 235 228 1/2
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32 241 234 1/2
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33 247 240 1/2
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34 253 246 1/2
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35 259 252 1/2
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37 271 264 1/2
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39 283 276 1/2
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43 307 300 1/2
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44 313 306 1/2
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48 337 330 1/2
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49 343 336 1/2
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51 355 348 1/2
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53 367 360 1/2
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54 373 366 1/2
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55 379 372 1/2
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58 397 390 1/2
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59 403 396 1/2
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87 571 564 1/2
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89 583 576 1/2
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220 1369 1362 1/2
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221 1375 1368 1/2
221 1/2 1378 1371 1/2
222 1381 1374 1/2
222 1/2 1384 1377 1/2
223 1387 1380 1/2
223 1/2 1390 1383 1/2
224 1393 1386 1/2
224 1/2 1396 1389 1/2
225 1399 1392 1/2
225 1/2 1402 1395 1/2
226 1405 1398 1/2
226 1/2 1408 1401 1/2
227 1411 1404 1/2
227 1/2 1414 1407 1/2
228 1417 1410 1/2
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233 1447 1440 1/2
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234 1453 1446 1/2
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235 1459 1452 1/2
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236 1465 1458 1/2
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237 1471 1464 1/2
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238 1/2 1480 1473 1/2
239 1483 1476 1/2
239 1/2 1486 1479 1/2
240 1489 1482 1/2
240 1/2 1492 1

IRON AND STEEL WAREHOUSE PRICES

PITTSBURGH

Base per Lb.

Plates	3.15c.
Structural shapes	3.15c.
Soft steel bars and small shapes	2.95c.
Reinforcing steel bars	2.95c.
Cold-finished and screw stock:	
Rounds and hexagons	3.35c.
Squares and flats	3.35c.
Hoops and bands under 1/4 in.	3.20c.
Hot-rolled annealed sheets (No. 24), 25 or more bundles	3.30c.
Galv. sheets (No. 24), 25 or more bundles	3.95c.
Hot-rolled sheets (No. 10)	2.95c.
Galv. corrug. sheets (No. 28), per square (more than 3750 lb.)	\$3.69
Spikes, large	3.10c.
Track bolts, all sizes, per 100 count	.65 per cent off list
Machine bolts, 100 count, 65 per cent off list	
Carriage bolts, 100 count, 65 per cent off list	
Nuts, all styles, 100 count, 65 per cent off list	
Large rivets, base per 100 lb.	\$3.80
Wire, black, soft ann'd, base per 100 lb.	2.90c.
Wire, galv. soft, base per 100 lb.	3.25c.
Common wire nails, per keg	2.35c.
Cement coated nails, per keg	2.35c.

On plates, structurals, bars, reinforcing bars, bands, hoops and blue annealed sheets, base applies to orders of 400 to 9999 lb.

*Delivered in Pittsburgh switching district.

CHICAGO

Base per Lb.

Plates and structural shapes	3.20c.
Soft steel bars, rounds	3.00c.
Soft steel bars, squares and hexagons	3.15c.
Cold-fin. steel bars:	
Rounds and hexagons	3.50c.
Flats and squares	3.50c.
Hot-rolled strip	3.30c.
Hot-rolled annealed sheets (No. 24)	3.85c.
Galv. sheets (No. 24)	4.55c.
Hot-rolled sheets (No. 10)	3.05c.
Spikes (keg lots)	3.50c.
Track bolts (keg lots)	4.65c.
Rivets, structural (keg lots)	3.65c.
Rivets, boiler (keg lots)	3.75c.
Per Cent Off List	
Machine bolts	*70
Carriage bolts	*70
Lag screws	*70
Hot-pressed nuts, sq. tap or blank	*70
Hot-pressed nuts, hex. tap or blank	*70
Hex. head cap screws	87 1/2
Cut point set screws	75 and 10
Flat head bright wood screws	70
Spring cotters	55
Stove bolts in full packages	70
Rd. hd. tank rivets, 7/16 in. and smaller	57 1/2
Wrought washers	\$4.50 off list
Black ann'd wire per 100 lb.	\$3.85
Com. wire nails, base per keg	2.95†
Cement c't'd nails, base per keg	2.95†

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 9999 lb. All prices are f.o.b. consumers' plants within the Chicago switching district.

*These are quotations delivered to city trade for quantities of 100 lb. or more. For lots of less than 100 lb., the quotation is 65 per cent off. Discounts applying to country trade are 70 per cent off, f.o.b. Chicago, with full or partial freight allowed up to 50c. per 100 lb.

†Prices for city and suburbs only.

NEW YORK

Base per Lb.

Plates, 1/4 in. and heavier	3.40c.
Structural shapes	3.37c.
Soft steel bars, rounds	3.31c.
Iron bars	3.31c.
Iron bars, Swed. charcoal	6.75c. to 7.00c.

Cold-fin. shafting and screw stock:	
Rounds and hexagons	3.81c.
Flats and squares	3.81c.
Cold-rolled; strip, soft and quarter hard	3.36c.
Hoops	3.56c.
Bands	3.56c.
Hot-rolled sheets (No. 10)	3.31c.
Hot-rolled ann'd sheets (No. 24*)	3.89c.
Galvanized sheets (No. 24*)	Special
Long terme sheets (No. 24)	5.25c.
Standard tool steel	11.00c.
Wire, black annealed (No. 10)	3.40c.
Wire, galv. (No. 10)	3.75c.
Tire steel, 1 x 1/2 in. and larger	3.75c.
Open-hearth spring steel	4.00c. to 10.00c.
Common wire nails, base per keg	\$3.21

Per Cent Off List

Machine bolts, square head and nut:	
All diameters	.65 and 10
Carriage bolts, cut thread:	
All diameters	.65 and 10
Boiler tubes:	Per 100 Ft.
Lap welded, 2-in.	\$18.05
Seamless welded, 2-in.	19.24
Charcoal iron, 2-in.	24.94
Charcoal iron, 4-in.	63.65

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

ST. LOUIS

Base per Lb.

Plates and struc. shapes	3.45c.
Bars, soft steel (rounds and flats)	3.25c.
Bars, soft steel (squares, hexagons, ovals, half ovals and half rounds)	3.40c.
Cold-fin. rounds, shafting, screw stock	3.75c.
Hot-rolled annealed sheets (No. 24)	4.10c.
Galv. sheets (No. 24)	4.65c.
Hot-rolled sheets (No. 10)	3.30c.
Black corrug. sheets (No. 24)	4.10c.
*Galv. corrug. sheets	4.65c.
Structural rivets	4.00c.
Boiler rivets	4.10c.

Per Cent Off List

Tank rivets, 7/16 in. and smaller	55
Machine and carriage bolts, lag screws, fitting up bolts, bolt ends, plow bolts, hot-pressed nuts, square and hexagon, tapped or blank, semi-finished nuts; all quantities	70

*No. 26 and lighter take special prices.

PHILADELPHIA

Base per Lb.

*Plates, 1/4-in. and heavier	2.98c.
*Structural shapes	2.98c.
*Soft steel bars, small shapes, iron bars (except bands)	3.03c.
†Reinforc. steel bars, sq. twisted and deformed	2.96c.
Cold-finished steel bars	3.76c.
*Steel hoops	3.43c.
*Steel bands, No. 12 and 3/16 in. incl.	3.18c.
Spring steel	5.00c.
†Hot-rolled anneal. sheets (No. 24)	3.65c.
†Galvanized sheets (No. 24)	4.40c.
*Hot-rolled annealed sheets (No. 10)	3.08c.
Diam. pat. floor plates, 1/4 in.	4.95c.
Swedish iron bars	6.25c.

These prices are subject to quantity differential except on reinforcing and Swedish iron bars.

*Base prices subject to deduction on orders aggregating 4000 lb. or over.

†For 25 bundles or over.

†For less than 2000 lb.

CLEVELAND

Base per Lb.

Plates and struc. shapes	3.31c.
Soft steel bars	3.00c.
Reinforc. steel bars	2.10c.
†Cold-finished steel bars	3.50c.
Flat-rolled steel under 1/4 in.	3.36c.
Cold-finished strip	†3.00c.

Hot-rolled annealed sheets (No. 24)	3.91c.
Galvanized sheets (No. 24)	4.61c.
Hot-rolled sheets (No. 10)	3.11c.
Hot-rolled 3/16 in. 24 to 48 in. wide sheets	3.56c.
*Black ann'd wire, per 100 lb.	\$2.40
*No. 9 galv. wire, per 100 lb.	2.75
*Com. wire nails, base per keg	2.35

†Outside delivery 10c. less.

*For 5000 lb. or less.

CINCINNATI

Base per Lb.

Plates and struc. shapes	3.42c.
Bars, rounds, flats and angles	3.22c.
Other shapes	3.37c.
Rail steel reinforc. bars	3.25c.
Hoops and bands, 3/16 in. and lighter	3.47c.
Cold-finished bars	3.72c.
Hot-rolled annealed sheets (No. 24)	4.02c.
Galv. sheets (No. 24) 500 lb. or less	4.47c.
Galvanized sheets (No. 24) over 500 lb.	4.07c.
Hot-rolled sheets (No. 10)	3.22c.
Structural rivets	4.35c.
Small rivets	.55 per cent off list
No. 9 ann'd wire, per 100 lb. (1000 lb. or over)	\$2.88
Com. wire nails, base per keg	
Any quantity less than carload	3.04
Cement c't'd nails, base 100-lb. keg	3.50
Chain. lin. per 100 lb.	8.35

Net per 100 Ft.

Seamless steel boiler tubes, 2-in.	\$20.37
4-in.	48.14
Lap-welded steel boiler tubes, 2-in.	19.38
4-in.	45.32

BUFFALO

Base per Lb.

Plates	3.38c.
Struc. shapes	3.25c.
Soft steel bars	3.05c.
Reinforcing bars	2.60c.
Cold-fin. flats and sq.	3.55c.
Rounds and hex.	3.55c.
Cold-rolled strip steel	3.19c.
Hot-rolled annealed sheets (No. 24)	4.06c.
Heavy hot-rolled sheets (3/16 in., 24 to 48 in. wide)	3.43c.
Galv. sheets (No. 24)	4.70c.
Bands	3.43c.
Hoops	3.43c.
Heavy hot-rolled sheets	3.18c.
Com. wire nails, base per keg	\$3.10
Black wire, base per 100 lb. (2500-lb. lots or under)	4.00
(Over 2500 lb.)	3.90

BOSTON

Base per Lb.

Beams, channels, angles, tees, zees	3.54c.
H beams and shapes	3.54c.
Plates—Sheared, tank, and univ. mill, 1/4 in. thick and heavier	3.56c.
Floor plates, diamond pattern	5.36c.
Bar and bar shapes (mild steel)	3.45c.
Bands 3/16 in. thick and No. 12 ga. incl.	3.65c. to 4.65c.
Half rounds, half ovals, ovals and bevels	4.70c.
Tire steel	4.70c.
Cold-rolled strip steel	3.245c.
Cold-finished rounds, squares and hexagons	3.90c.
Cold-finished flats	3.90c.
Blue annealed sheets, No. 10 ga.	3.65c.
One pass cold-rolled sheets No. 24 ga.	4.20c.
Galvanized steel sheets, No. 24 ga.	4.00c.
Lead coated sheets, No. 24 ga.	5.85c.

Price delivered by truck in metropolitan Boston, subject to quantity differentials.

DETROIT

Base per Lb.

Soft steel bars	3.09c.
Structural shapes	3.42c.
Plates	3.42c.
Floor plates	5.17c.
Hot-rolled annealed sheets (No. 24)	3.94c.
Hot-rolled sheets (No. 10)	3.14c.
Galvanized sheets (No. 24)*	4.72c.
Bands	3.39c.
Hoops	3.39c.
†Cold-finished bars	3.64c.
Cold-rolled strip	3.18c.
Hot-rolled alloy steel (S.A.E. 3100 Series)	5.29c.*
Bolts and nuts, in cases, 70 and 10 per cent off list	
Broken cases	70 per cent off

Prices delivered by truck in metropolitan Detroit, subject to quantity differentials.

*Price applies to 1,000 lb. and over.

†With reduction in chemical extras.

**0.25c. off list for 10 to 25 bundles; 0.50c. for 25 bundles and over, Detroit delivery only.

MILWAUKEE

Base per Lb.

Plates and structural shapes..	3.31c.
Soft steel bars, rounds up to 8 in., flats and fillet angles...	3.11c.
Soft steel bars, squares and hexagons	3.26c.
Hot-rolled strip	3.41c.
Hot-rolled sheets (No. 10)....	3.16c.
Hot-rolled annealed 3/16—24 in. to 48 in. wide incl.	3.41c.
Hot-rolled annealed sheets (No. 24)	3.96c.
Galvanized sheets (No. 20)	4.66c.
Cold-finished steel bars.....	3.61c.
Cold-rolled strip	3.33c.
Structural rivets (keg lots) ..	3.86c.
Boiler rivets, cone head (keg lots)	3.96c.
Track spikes (keg lots)	3.91c.
Track bolts (keg lots)	4.91c.
Black annealed wire	3.40c.
Com. wire nails	2.60c.
Cement coated nails	2.60c.

Per Cent Off List

Machine bolts, carriage bolts and lag screws	70 to 75
Hot-pressed nuts, sq. and hex. tapped or blank (keg lots)....	70

Prices given above are delivered Milwaukee.

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 9999 lb. On galvanized and No. 24 hot-rolled annealed sheets the prices given apply on orders of 400 to 1500 lb. On cold-finished bars the prices are for orders of 1000 lb. or more of a size.

ST. PAUL

Base per Lb.

Mild steel bars, rounds	3.25c.
Structural shapes	3.45c.
Plates	3.45c.
Cold-finished bars	4.02c.
Bands and hoops	3.55c.
Hot-rolled annealed sheets, No. 24	3.90c.
Galvanized sheets, No. 24.....	4.50c.
Cold-rolled sheets, No. 20	4.95c.

On mild steel bars, shapes, plates and hoops and bands the base applies on 400 to 14,999 lb. On hot-rolled sheets, galvanized sheets and cold-rolled sheets base applies on 15,000 lb. and over. Base on cold-finished bars is 1000 lb. and over of a size.

BALTIMORE

Base per Lb.

*Mild steel bars	3.00c.
**Reinforcing bars	2.85c.
*Structural shapes	3.00c.
†Plates	3.00c.
†Hot-rolled sheets, No. 10....	3.10c.
†Hot-rolled annealed sheets, No. 24	3.60c.
†Galvanized sheets, No. 24....	4.30c.
*Bands	3.20c.
*Hoops	3.45c.
§Cold-rolled rounds	3.73c.
§Cold-rolled squares, hex. and flats	3.73c.
Rivets	4.40c.
Bolts and nuts, per cent off list	60 and 10

*Quantity extras per size apply.
†Quantity extras per thickness apply.
Hot-rolled quantity extras are: 2000 lb. and over, base: 1500 lb. to 1999 lb. add 15c. per 100 lb.; 1000 lb. to 1499 lb. add 30c.; 0 to 999 lb., add 50c.

‡25 bundles and over, base. For 1 to 9 bundles add 50c. per 100 lb.; for 10 to 24 bundles add 25c.

§Base for 1000 lb. and over. For 500 to 999 lb. add 25c. per 100 lb.; for 300 to 499 lb. add \$1.00; for 0 to 299 lb. add \$1.75; for combined order under 100 lb. add \$3.00.

**For orders 4000 lb. to 9999 lb. Add 15c. per 100 lb. for orders 2000 to 3999 lb.; add 65c. for orders less than 2000 lb.

CHATTANOOGA

Base per Lb.

Mild steel bars	3.36c.
Iron bars	3.36c.
Reinforcing bars	3.36c.
Structural shapes	3.56c.
Plates	3.56c.
Hot-rolled sheets, No. 10....	3.36c.
Hot-rolled annealed sheets No. 24	4.16c.
Galvanized sheets, No. 24.....	4.86c.
Steel bands	3.61c.
Cold-finished bars	4.13c.

MEMPHIS

Base per Lb.

Mild steel bars	3.47c.
Shapes, bar size	3.47c.
Iron bars	3.47c.
Structural shapes	3.67c.
Plates	3.67c.
Hot-rolled sheets, No. 10....	3.47c.
Hot-rolled annealed sheets, No. 24	4.27c.
Galvanized sheets, No. 24	4.80c.
Steel bands	3.72c.
Cold-drawn rounds	3.89c.
Cold-drawn flats, squares, hexagons	5.89c.
Structural rivets	4.25c.
Bolts and nuts, per cent off list	70
Small rivets, per cent off list.	50

NEW ORLEANS

Base per Lb.

Mild steel bars	3.35c.
Reinforcing bars	3.50c.
Structural shapes	3.55c.
Plates	3.55c.
Hot-rolled sheets, No. 10	3.55c.
Hot-rolled annealed sheets, No. 24	4.35c.
Galvanized sheets, No. 24	4.95c.
Steel bands	3.95c.
Cold-finished steel bars	4.30c.
Structural rivets	4.25c.
Boiler rivets	4.25c.
Common wire nails, base per keg	\$2.65
Bolts and nuts, per cent off list	70

PACIFIC COAST

Base per Lb.

	San Francisco	Los Angeles	Seattle
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Plates, tank and U. M.	3.25c.	3.60c.	3.80c.
Shapes, standard	3.25c.	3.60c.	3.80c.
Soft steel bars..	3.25c.	3.60c.	3.95c.
Reinforcing bars, f.o.b. cars dock Pacific ports..	2.45c.	2.45c.	2.45c.
Hot-rolled annealed sheets (No. 24)	4.10c.	4.35c.	4.40c.
Hot-rolled sheets (No. 10)	3.35c.	3.70c.	3.75c.
Galv. sheets (No. 24 and lighter)	4.50c.	4.40c.	5.00c.
Galv. sheets (No. 22 and heavier)	5.00c.	4.60c.	5.00c.
Cold finished steel			
Rounds	5.80c.	5.85c.	6.00c.
Squares and hexagons.	7.05c.	7.10c.	7.25c.
Flats	7.55c.	7.60c.	8.25c.
Common wire nails—base per keg less carload	\$2.90	\$2.90	\$2.90

All items subject to differentials for quantity.

REFRACTORIES PRICES

Fire Clay Brick

Per 1000 f.o.b. Works

High-heat duty, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	\$45.00
High-heat duty, New Jersey....	50.00
High-heat duty, Ohio	40.00
Intermediate, Pennsylvania, Maryland, Kentucky, Mis- souri and Illinois	40.00
Intermediate, New Jersey.....	43.00
Intermediate, Ohio	35.00
Ground fire clay, per ton.....	7.00

Silica Brick

Per 1000 f.o.b. Works

Pennsylvania	\$45.00
Chicago District	54.00
Birmingham	\$48.00 to 50.00
Silica cement per net ton.....	8.00

Chrome Brick

Per Net Ton

Standard f.o.b. Baltimore, Plym- outh Meeting and Chester....	\$45.00
Chemically bonded f.o.b. Balti- more, Plymouth Meeting and Chester, Pa.....	45.00

Magnesite Brick

Per Net Ton

Standard, f.o.b. Baltimore and Chester, Pa.	\$65.00
Chemically bonded, f.o.b. Balti- more	55.00

Grain Magnesite

Per Net Ton

Imported, f.o.b. Baltimore and Chester, Pa. (in sacks).....	\$45.00
Domestic, f.o.b. Baltimore and Chester, in sacks.....	40.00
Domestic, f.o.b. Chewelah, Wash.	22.00

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.; Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	\$20.50
Delivered Brooklyn	22.9289
Delivered Newark or Jersey City	21.9873
Delivered Philadelphia	21.3132
F.o.b. Neville Island, Sharpstown and Erie, Pa.; Buffalo; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	19.50
F.o.b. Jackson, Ohio	21.25
Delivered Cincinnati	20.5807
F.o.b. Duluth	20.00
F.o.b. Provo, Utah	17.50
Delivered San Francisco, Los Angeles or Seattle	22.315
F.o.b. Birmingham*	15.50

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same.

Basic

F.o.b. Everett, Mass.; Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	\$20.00
Delivered Boston Switching District	20.50
Delivered Newark or Jersey City	21.4873
Delivered Philadelphia	20.8132
F.o.b. Buffalo	18.50
F.o.b. Neville Island, Sharpstown and Erie, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	19.00
Delivered Cincinnati	20.0807
Delivered Canton, Ohio	20.3482
Delivered Mansfield, Ohio	20.8832
F.o.b. Jackson, Ohio	20.75
F.o.b. Provo, Utah	17.00
F.o.b. Birmingham	14.50

Bessemer

F.o.b. Everett, Mass.; Bethlehem, Birdsboro and Swedeland, Pa.	\$21.50
Delivered Boston Switching District	22.00
Delivered Newark or Jersey City	22.9873
Delivered Philadelphia	22.3132
F.o.b. Buffalo and Erie, Pa., and Duluth	20.50
F.o.b. Neville Island and Sharpstown, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Birmingham	20.00
Delivered Cincinnati	21.0807
Delivered Canton, Ohio	21.3482
Delivered Mansfield, Ohio	21.8832

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	\$24.00
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Gray Forge

Valley or Pittsburgh furnace	\$19.00
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Charcoal

Lake Superior furnace	\$22.00
Delivered Chicago	25.2528

Canadian Pig Iron

Per Gross Ton	
Delivered Toronto	
No. 1 fdy., sil. 2.25 to 2.75	\$21.00
No. 2 fdy., sil. 1.75 to 2.75	20.50
Malleable	22.50
Delivered Montreal	
No. 1 fdy., sil. 2.25 to 2.75	\$22.50
No. 2 fdy., sil. 1.75 to 2.25	22.00
Malleable	22.50
Basic	22.00

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans.	
Per Gross Ton	
Domestic, 80% (carload)	\$75.00

Spiegeleisen

Per Gross Ton Furnace	
Domestic, 19 to 21%	\$26.00
50-ton lots 3-mo. shipment	24.00
F.o.b. New Orleans	26.00

Electric Ferrosilicon

Per Gross Ton Delivered	
50% (carloads)	\$77.50
50% (ton lots)	85.00
75% (carloads)	126.00
75% (ton lots)	130.00

Silvery Iron

Per Gross Ton	
F.o.b. Jackson, Ohio, 6.00 to 6.50%	\$22.75
For each additional 0.5% silicon up to 12%, 50c. a ton is added.	

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are \$1.25 a ton higher than at Jackson. Manganese 2 to 3%, \$1 a ton additional. For each unit of manganese over 3%, \$1 a ton additional. Phosphorus 0.75% or over, \$1 a ton additional.

Bessemer Ferrosilicon

F.o.b. Jackson, Ohio, Furnace

Per Gross Ton	Per Gross Ton
10.00 to 10.50%	\$27.75
10.51 to 11.00%	28.25
11.01 to 11.50%	28.75
11.51 to 12.00%	29.25
12%	30.25

Manganese 2 to 3%, \$1 a ton additional. For each unit of manganese over 3%, \$1 a ton additional. Phosphorus 0.75% or over, \$1 a ton additional. Base prices at Buffalo are \$1.25 a ton higher than at Jackson.

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads	\$1.30
Ferrotungsten, lots of 5000 lb.	1.35
Ferrotungsten, smaller lots	1.40
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr per lb. contained Cr delivered, in carloads, and contract	10.00c.
Ferrochromium, 2% carbon	16.50c. to 17.00c.
Ferrochromium, 1% carbon	17.50c. to 18.00c.
Ferrochromium, 0.10% carbon	19.50c. to 20.00c.
Ferrochromium, 0.06% carbon	20.00c. to 20.50c.
Ferrovanadium, del. per lb. contained V.	\$2.70 to \$2.90
Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y.	\$2.50
Ferrocobaltititanium, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton	\$137.50
Ferrocobaltititanium, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton	142.50
Ferrophosphorus, electric, or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with \$3 unitage, freight equalized with Rockdale, Tenn., per gross ton	58.50
Ferrophosphorus, electric, 24%, in carlots, f.o.b. Anniston, Ala., per gross ton with \$3 unitage, freight equalized with Nashville, Tenn.	75.00
Ferromolybdenum, per lb. Mo del.	95c.
Calcium molybdate, per lb. Mo del.	80c.
Silico spiegel, per ton, f.o.b. furnace, carloads	\$38.00
Ton lots or less, per ton	45.50
Silico-manganese, gross ton, delivered	
2.50% carbon grade	85.00
2% carbon grade	90.00
1% carbon grade	100.00
Spot prices	\$5 a ton higher

ORES

Lake Superior Ores

Delivered Lower Lake Ports	
Per Gross Ton	
Old range, Bessemer, 51.50%...	\$4.80
Old range, non-Bessemer, 51.50%	4.65
Mesabi, Bessemer, 51.50%	4.65
Mesabi, non-Bessemer, 51.50%	4.50
High phosphorus, 51.50%	4.40

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit	
Iron, low phos., copper free, 55 to 58% dry Spain or Algeria	10.25c.
Iron, low phos., Swedish, average, 68½% iron	10.25c.
Iron, basic or foundry, Swedish, aver. 65% iron	9.50c.
Iron, basic or foundry, Russian, aver. 65% iron	Nominal
Man., Caucasian, washed 52%	26c.
Man., African, Indian, 44-48%	25c.
Man., African, Indian, 49-51%	26c.
Man., Brazilian, 46 to 48½%	24c.
Per Net Ton Unit	
Tungsten, Chinese, wolframite, duty paid, delivered, nominal	16.00
Tungsten, domestic, scheelite delivered, nominal	16.00
Per Gross Ton	
Chrome, 45% Cr ₂ O ₃ , lamp, c.i.f. Atlantic Seaboard (African)	\$17.50
45 to 46% Cr ₂ O ₃ (Turkish)	\$16.50 to 17.00
48% Cr ₂ O ₃ (African)	20.50
48% min. Cr ₂ O ₃ (Turkish)	19.25
Chrome concentrate, 50% and over Cr ₂ O ₃ , c.i.f. Atlantic ports	22.00
52% Cr ₂ O ₃ (Turkish)	21.75
48 to 49% Cr ₂ O ₃ (Turkish)	19.25

FLUORSPAR

Per Net Ton	
Domestic, washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail	\$18.00
Domestic, barge and rail	19.00
No. 2 lump, 85-5, f.o.b. Kentucky and Illinois mines	20.00
Foreign, 85% calcium fluoride, not over 5% silicon, c.i.f. Atlantic ports, duty paid	21.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	35.00

FUEL OIL

Per Gal.	
F.o.b. Bayonne or Baltimore, No. 3 distillate	4.25c.
F.o.b. Bayonne or Baltimore, No. 4 industrial	3.75c.
Del'd Ch'go, No. 3 industrial	5.00c.
Del'd Ch'go, No. 5 industrial	3.77c.
F.o.b. Cleveland, No. 3 distillate	6.00c.
F.o.b. Cleveland, No. 5 industrial	5.00c.

COKE AND COAL

Coke	
Per Net Ton	
Furnace, f.o.b. Connellsville Prompt	\$3.65 to \$3.80
Foundry, f.o.b. Connellsville Prompt	4.25 to 5.75
Foundry, by-product, Chicago ovens	9.00
Foundry, by-product, del'd New England	11.50
Foundry, by-product, del'd Newark or Jersey City	9.65
Foundry, by-product, Philadelphia	9.38
Foundry, by-product, delivered Cleveland	9.75
Foundry, by-product, delivered Cincinnati	9.50
Foundry, Birmingham	6.50
Foundry, by-product, St. Louis, f.o.b. ovens	8.00
Foundry, from Birmingham, f.o.b. cars docks, Pacific ports	14.75
Coal	
Per Net Ton	
Mine run steam coal, f.o.b. W. Pa. mines	\$1.50 to \$1.75
Mine run coking coal, f.o.b. W. Pa.	1.90 to 2.10
Gas coal, ¾-in. f.o.b. Pa. mines	2.00 to 2.25
Mine run gas coal, f.o.b. Pa. mines	1.80 to 2.00
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.25
Gas slack, f.o.b. W. Pa. mines	1.20 to 1.45

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PITTSBURGH
METALLURGICAL CO., Inc.
NIAGARA FALLS NEW YORK

May Production of Steel Ingots Rises Above 4,000,000 Tons

PRODUCTION of Bessemer and open-hearth steel ingots during May rose to 4,046,253 gross tons, according to the American Iron and Steel Institute. This was 103,999 tons above the 3,942,254 tons produced in April and 1,412,592 tons higher than the 2,633,661 tons turned out in May, 1935. Daily production was at the rate of 155,625 tons, compared with April's 151,625 tons and 97,543 tons a year ago.

From January through May 17, 341,490 tons of steel ingots was produced, as against 13,783,987 tons for the corresponding period last year.

Total output in May was suffi-

REPORTED BY COMPANIES WHICH IN 1934 MADE 97.91 PER CENT OF THE OPEN-HEARTH AND 100 PER CENT OF THE BESSEMER INGOT PRODUCTION

	Reported Production (Gross Tons)		Calculated Monthly Production All Companies		Number of Working Days	Per Cent of Opera- tion
	Open-Hearth	Bessemer	Monthly	Daily		
1934						
January ...	1,786,458	172,489	1,997,129	73,968	27	33.59
February ..	1,993,465	175,873	2,211,944	92,164	24	41.86
March	2,540,243	203,904	2,798,440	103,646	27	47.07
April	2,622,531	257,482	2,936,064	117,443	25	53.34
May	3,003,676	331,620	3,399,494	125,907	27	57.18
June	2,718,782	282,592	3,059,483	117,672	26	53.44
July	1,340,924	119,869	1,489,453	59,578	25	27.06
August	1,245,139	109,598	1,381,350	51,161	27	23.24
September ..	1,127,269	117,615	1,268,977	50,759	25	23.05
October	1,325,777	127,789	1,481,902	54,885	27	24.93
November ..	1,447,626	132,059	1,610,625	61,947	26	28.13
December ..	1,794,437	131,467	1,964,257	78,570	25	35.68
Total	22,946,327	2,162,357	25,599,118	83,312	311	37.38
1935						
January ...	2,578,531	239,858	2,870,161	106,302	27	48.02
February ...	2,499,744	224,336	2,774,271	115,595	24	52.22
March	2,582,628	230,810	2,865,292	110,204	26	49.78
April	2,361,275	231,916	2,640,602	101,562	26	45.88
May	2,332,042	254,796	2,633,661	97,543	27	44.06
June	2,007,862	210,487	2,258,664	90,347	25	40.81
July	2,003,151	224,456	2,267,827	87,224	26	39.40
August	2,629,768	233,361	2,915,930	107,997	27	48.78
September ...	2,540,264	233,737	2,825,004	113,000	25	51.04
October	2,815,510	270,719	3,142,759	116,398	27	52.58
November ...	2,841,199	252,163	3,150,409	121,170	26	54.73
December ...	2,789,015	228,392	3,073,405	122,936	25	55.53
Total	29,980,989	2,835,031	33,417,985	107,453	311	48.54
1936						
January ...	2,793,421	196,389	3,045,946	112,813	27	51.40
February ...	2,707,562	202,445	2,964,418	118,577	25	54.03
March	3,095,375	185,040	3,342,619	128,562	26	58.58
April	3,565,821	304,775	3,942,254	151,625	26	69.09
May	3,670,401	302,092	4,046,253	155,625	26	70.91

cient to engage the industry at 70.91 per cent of capacity, contrasted with a rate of 69.09 per cent the month before and 44.06 per cent for May, 1935.

Year Book of Metal Statistics Issued

STATISTICS of the major non-ferrous metals for 1935 are incorporated in the sixteenth annual year book of the American Bureau of Metal Statistics, recently issued. Carefully prepared tables on copper, lead and zinc are supplemented by data on gold and silver, tin, antimony, platinum and other less known but important metals of commerce. The compilation covers both foreign and domestic material, and ample comparisons with earlier years are given.

An introduction by W. R. Ingalls, director of the bureau, includes a brief description of the book's contents. Additional help in interpreting the data is supplied by textual references to individual tables.

Westinghouse Electric & Mfg. Co., East Pittsburgh, has inaugurated a stockholders quarterly, containing news and comments of each quarter. Financial reports appear, as well as outstanding news items and developments. Interesting facts concerning the company are covered in the booklet for the information of stockholders. It is pocket-size and is well illustrated.

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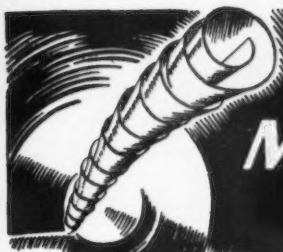


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THIS WEEK'S MACHINE TOOL ACTIVITIES

... Foreign machine outlook in a state of flux.

o o o

... Apparently well-learned lessons now factor a steadied domestic machine tool recovery.

o o o

... Small tools, equipments and devices assume prominence in purchase consideration.

o o o

By L. M. WAITE

o o o

THERE is no ground for expectancy that the momentum now attained in a world-wide overhauling of mechanical abilities to compete in armament programs is to fall by the wayside because of any lack of sustained determination. Just what the situation augurs for American machine tool activity remains to be seen.

Apparently foreign alliances are still in the making. Destinations of German machine tool shipments are reported as basically altered during recent months, and as indicating possible realignments over a considerable coverage of international strategy. Additionally, Germany has taken care of increases in her domestic orders, estimated as high as 50 per cent over the preceding year. From the viewpoint of machine tool orders, Germany and Italy appears to be on very good terms.

It is held to be more than evident that foreign outlets for American machine shops need added cultivation.

o o o

From a domestic viewpoint the machine tool industry shows little inclination to maneuver itself into a stock-inventory position which

will later require the moving of superseded equipments at prices which do not represent a return of original costs. Management is refusing to line the aisles of its stockrooms and the four walls of its assembly floors with stock machines, regardless of sales department pressures. Marked-down costs, through overworked depreciation devices, are but scatteringly employed as selling bait. Subordination of real profit to gain booked volume, is now generally frowned upon as a proven fallacy in an industry which must deal with individual engineering problems of its patrons.

Under today's order-book condition, these trends are discernible in the avoidance of stampede to overly increased size of lots in which various models of equipments are to be manufactured; limits seem to be conservatively set, well short of high-pressure surges, and with due consideration for new processes and materials. Work materials no longer adhere to former standards; specification changes are headed toward a new high.

Reports from wide areas indicate that much current consideration is being given to small tools, equipment and devices which involve time saving in any important degree. The utility of duplicate equipment is also commented upon as being far more generally recognized, not only from a viewpoint of breakdowns, but as an aid in avoiding periods of waiting in connection with many shop operations.

Chicago

Inquiry from Western railroads is encouraging. The Milwaukee Road leads with openings for approximately \$100,000 in new equipment. It is believed that inquiries will be forthcoming from railroad equipment manufacturers in the near future. Dealers are giving close attention to this field. Farm implement manufacturers are still actively in the market but have not as yet announced line production programs. Small tool business continues to be exceptionally good. Taken as a whole, the market is held to be slowly but steadily improving on a broad base.

Detroit

General motors units at the present time are providing a large part of the activity on inquiries for tools to be purchased purely for cost reduction and modernization purposes. Miscellaneous machinery dealers report, however, active inquiries and demand for a variety of equipment. These suppliers look to a brisk trade for the summer months, during which enabling devices and mechanisms are to be lined up to supplement the large production lines.

Cleveland

Automatic screw machines were out in front on orders for the week. There is improvement in inquiry for toolroom equipment from stampings plants engaged in automotive work. Forging machinery is moving well to forge shops producing automobile parts, but not much business is coming directly from car builders. Turret lathes continue active and a good June volume is anticipated. The entire range of orders is mostly for single machines. Demand in the Cleveland area developed considerable improvement during the week.

Cincinnati

Inquiry is good. One and two-machine demand remains steady. Lighter machines held the lead position during the week. Europe and the Far East were represented in the breadth of demand. Standard equipments predominated, indicating steadiness in replacements and retoolings. The way this demand is holding is responsible for opinions that June will equal May in totals. Engineering departments are busy on production proposals which will feature conferences later in the year.

PLANT EXPANSION AND EQUIPMENT BUYING



... **West Virginia Pulp & Paper Co., New York, will erect new mill at Charleston, S. C., to cost close to \$5,000,000.**

• • •

... **Wagner Electric Corp., St. Louis, has let contract for two-story plant unit to cost \$200,000 with equipment.**

• • •

... **Allis-Chalmers Mfg. Co., Milwaukee, will start work about Aug. 1 on a \$1,000,000 expansion program at its tractor works at Springfield, Ill.**

◀ NORTH ATLANTIC ▶

West Virginia Pulp & Paper Co., 230 Park Avenue, New York, has acquired large tract in port terminal area, Charleston, S. C., for new mill for kraft paper and liner board production. Plant will include a machine shop, power house, pumping station and other mechanical departments. Cost close to \$5,000,000 with equipment. David L. Luke, Jr., is vice-president.

Continental Can Co., 100 East Forty-second Street, New York, has plans for one-story addition to branch plant at Syracuse, N. Y. Cost over \$75,000 with equipment.

Signal Corps Procurement District, Army Base, Fifty-eighth Street and First Avenue, Brooklyn, asks bids until June 19 for frequency measuring equipment (Circular 237).

Universal Atlas Cement Co., 208 South La Salle Street, Chicago, has plans for extensions and improvements in branch mill at Hudson, N. Y., including complete electrification of plant. Work will include installation of new stone-crushing machinery, grinding, pulverizing, conveying, loading and other mechanical equipment, with Diesel-electric locomotive unit for haulage service. New limestone storage and distributing building will be erected. Cost over \$350,000 with machinery. Company is a subsidiary of United States Steel Corp.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 16 for one motor-driven tube-bending machine (Schedule 8084), one motor-driven vertical boring mill (Schedule 8091), one 1000-ton hydraulic forming press (Schedule 8097) for Brooklyn Navy Yard.

St. Regis Kraft Co., 230 Park Avenue, New York, a subsidiary of St. Regis Paper Co., same address, has plans for extensions and modernization in pulp mill at Tacoma, Wash., including new buildings and machinery for production of bleached sulphite pulp. Cost close to \$1,000,000 with equipment. Hardy S. Ferguson & Co., 200 Fifth Avenue, New York, are consulting engineers.

Ruberoid Co., 500 Fifth Avenue, New York, manufacturer of roofing products, has work under way on one-story additions to branch plant at Mobile, Ala., including manufacturing unit, 70 x 300 ft.; storage and distributing building, 120 x 120 ft.; machine shop, 40 x 70 ft., and office structure. Project will include new fuel oil

storage tanks and facilities, expansion in power substation for mill service and new mechanical-handling equipment. Cost about \$250,000 with machinery.

Superintendent, Army Transport Service, New York Port of Embarkation, Brooklyn, asks bids until June 15 for bolts, rivets, screws, nails, washers, brass pipe, pipe fittings, unions, valves, tacks, hacksaw blades, power hacksaw blades and other supplies (Circular 87).

Fidelio Brewery, 501 First Avenue, New York, has let general contract to Rhein-stein Construction Co., 21 East Fortieth Street, for three-story addition for storage and distribution. Cost about \$50,000 with equipment. Joseph D. Weiss, 119 West Fifty-seventh Street, is architect.

Board of Education, Keyport, N. J., has been authorized at special election to arrange financing for addition to high school for manual training department. Cost over \$75,000.

Commanding Officer, Ordnance Department, Frankford Arsenal, Philadelphia, asks bids until June 15 for malleable iron castings (Circular 516), seamless cold drawn steel tubing (Circular 517); until June 16, one automatic milling machine, for routing mechanical time fuze plate (Circular 506); until June 19, one motor-driven, floor type centerless grinder for A.A. projectiles (Circular 504).

Quartermaster Depot, Twenty-first and Johnston Streets, Philadelphia, asks bids until June 15 for malleable iron railing fittings, floor and ceiling plates, cast iron soil pipe fittings, pipe nipples, wrought iron pipe, pipe hangers, valves and other equipment (Circular 301); until June 17, armored cable, rubber-covered wire, switches, 30 steel surface cabinets, cartridge fuses, rigid conduit, pipe straps, outlet boxes, utility boxes and other electrical equipment (Circular 307).

Lukenweld, Inc., Coatesville, Pa., a subsidiary of Lukens Steel Co., has acquired about 12 acre tract at South Coatesville, improved with a number of shop buildings, for new plant.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 16 for one motor-driven disk grinder (Schedule 8083), one cylinder pressure engine indicator (Schedule 8065), one motor-driven slip roll forming machine (Schedule 8102) for Philadelphia Navy Yard.

◀ NEW ENGLAND ▶

Silex Co., Pliney Street, Hartford, manufacturer of percolators and other household

appliances, has let general contract to Allyn-Wadhams, 15 Lewis Street, for one-story addition, 45 x 140 ft. Cost over \$50,000 with equipment.

Truck Body & Equipment Co., Cambridge, Mass., has leased one-story building at 179-81 Brookline Street, for local plant.

Olds & Whipple, Inc., 166 State Street, Hartford, manufacturer of commercial fertilizers, has asked bids on general contract for one-story addition, 135 x 145 ft. Cost over \$75,000 with equipment. Mylchreest & Reynolds, 238 Palm Street, are architects and engineers.

Colonial Beacon Oil Co., 378 Stuart Street, Boston, has plans for new bulk oil storage and distributing plant at Burlington, Vt. Cost about \$50,000 with steel tanks and other equipment.

School Commission, Harwichport, Mass., plans manual training department in new junior and senior high school, for which bids will be asked soon on general contract. Cost over \$125,000. Harold R. Duffie, 364 Belgrade Avenue, West Roxbury, Mass., is architect.

Diamond Spring Brewery, Inc., Boston, has leased two-story building at 35-37 Lansdowne Street and will improve for new storage and distributing plant.

◀ BUFFALO DISTRICT ▶

Worthington Pump & Machinery Corp., Clinton and Roberts Streets, Buffalo, has asked bids on general contract for one-story addition. Cost close to \$60,000 with equipment.

Olney & Carpenter, Inc., Wolcott, N. Y., canner of food products, plans rebuilding part of canning plant recently destroyed by fire. Loss about \$100,000 with equipment.

Mathieson Alkali Works, Inc., Niagara Falls, N. Y., manufacturer of caustic soda, soda ash, etc., has approved plans for two one-story additions and improvements in present works. Cost over \$75,000 with equipment. William B. Leach is plant manager.

Board of Education, School District No. 1, Union Springs, N. Y., plans manual training department in new two-story central school, for which general contract has just been let to E. L. Van Sickle & Co., Hooker-Fulton Building, Bradford, Pa. Cost over \$500,000. Financing has been arranged through Federal aid.

◀ WESTERN PA. DIST. ▶

Aero Supply Mfg. Co., Corry, Pa., manufacturer of screw products for aircraft, plans two-story addition, 40 x 85 ft. Cost about \$45,000 with equipment.

Steel City Electric Co., 1207 Columbus Avenue, Pittsburgh, manufacturer of electrical specialties, has plans for two-story addition, primarily for storage and distribution. Cost close to \$40,000 with equipment. New structure will occupy about one-half of adjoining site, 75 x 130 ft., and later another unit will be built to use entire tract.

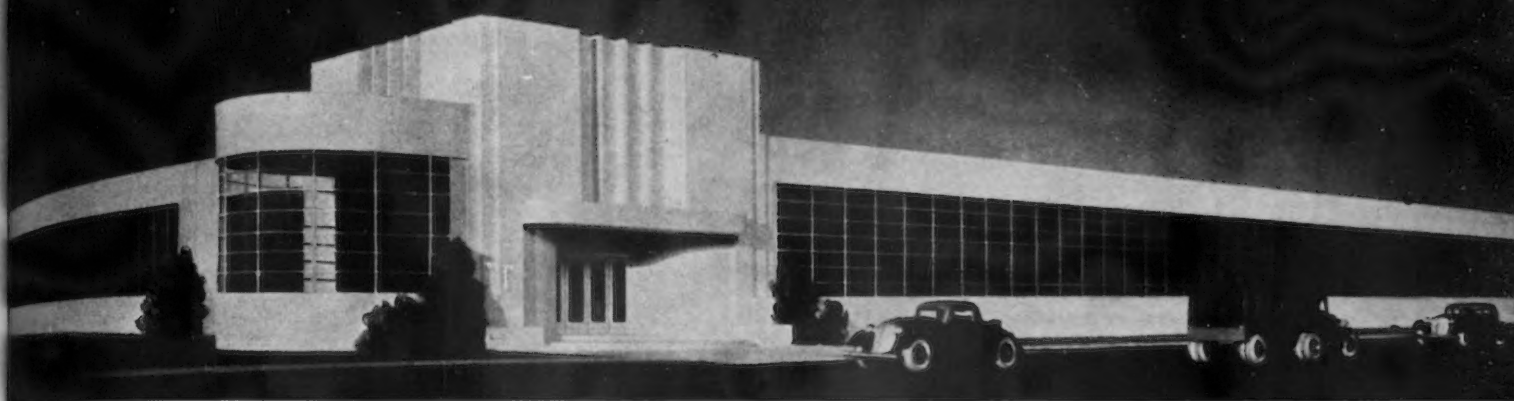
Quaker State Oil Refining Co., Chambers Building, Oil City, Pa., has approved plans for extensions and improvements in oil refinery in Farmers Valley, Pa., district, including new equipment. New steam power house will be built. Cost over \$100,000 with machinery. G. H. Hunter is general superintendent of plants.

◀ OHIO AND INDIANA ▶

Industrial Steel Casting Co., 2237 Waterworks Drive, Toledo, has let general contract to John Naumann, 364 Parker Avenue, for additions to plant at 3031 Front Street, for expansion in furnace division, cleaning department and other production units. Cost about \$150,000 with equipment, including new cranes and other mechanical-handling apparatus. Company has recently acquired tract, 200 x 250 ft., on Millard Avenue, near plant, for additions for storage and distribution later.

National Refining Co., Findlay, Ohio, has approved plans for expansion and improvements in oil refinery, to double approximately present capacity of 3200 bbl. per day. New still and auxiliary equipment will be installed. Cost about \$200,000 with equipment.

Great Lakes Stamping Co., Toledo, manu-



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FOR the far-sighted executive, Austin will provide a modern building of advanced design which not only fully meets present day requirements with up-to-the-minute facilities, but anticipates, as well, changed production demands of the future.

These modern designs represent maximum value per dollar expended because of the **flexibility**; their **quality construction** and their **low cost**.

Flexible Designs permit of easy and economical future expansion in all directions. Clear spans of 100 ft. or over may be provided with floor clearances of 15, 20, 30 ft. or more. Provision can be made for conveying systems such as monorail, belt conveyor or traveling bridge crane.

Large Clear Spans provided with cross section and bay spacing as required. Over 5,000 sq. ft. of unobstructed floor space per interior column.

Excellent Lighting—both natural and artificial lighting is provided in abundance. Daylighting is evenly distributed throughout the widest areas. More artificial illumination will be available at the working plane than is actually needed—but a far sighted feature.

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For interesting facts and figures regarding these Modern designs, or any other project which calls for new construction or plant modernization—phone, wire or write.

* Time of completion; quality of materials and workmanship; total costs are all **guaranteed in advance** as part of the Austin contract.

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Seattle Elliot 7020



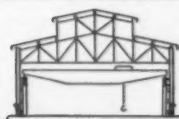
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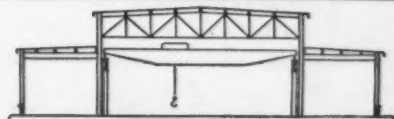
TYPE 3



TYPE 4



TYPE 6A



TYPE 10A

facturer of metal stampings, has recently taken over former factory of Jeannin Electric Co., Fassett Street and line of New York Central Railroad, for increased capacity.

Ohio Power Co., Newark, Ohio, plans extensions in transmission and distributing lines at Lima, Ohio, and vicinity, including new lines for rural electrification in that area. A power substation will be built at Lima. Entire project will cost about \$300,000 with equipment.

Contracting Officer, Material Division, Air Corps, Wright Field, Dayton, Ohio, asks bids until June 15 for 21 electric metal shears (Circular 922), two sets of gage blocks (Circular 923), 1100 side-cutting, 6-in. chain pliers (Circular 924), eight gasoline or oil motor-driven rotary pumps (Circular 957), 102 40-lb. lubricator guns, electric-operated (Circular 926), 40 gasoline flow meters (Circular 945); until June 16, 21,500 ft. steel tape armored cable (Circular 938), 31 1-ton, 14 2-ton, 24 3-ton and 10 15-ton spur gear chain hoists (Circular 937), files (Circular 936); until June 17, one electric furnace (Circular 955), three electric welders (Circular 980).

Rea Magnet Wire Co., East Pontiac Street, Fort Wayne, Ind., has let general contract to Indiana Engineering & Construction Co., Utility Building, for one-story addition, 36 x 160 ft. Cost close to \$50,000 with equipment.

Muehlhausen Spring Co., Michigan Street, Logansport, Ind., manufacturer of flat and coil steel springs, has approved plans for one-story addition. Cost about \$45,000 with equipment. George Muehlhausen is head.

◀ WASHINGTON DIST. ▶

Commanding Officer, Ordnance Department, Aberdeen Proving Ground, Aberdeen, Md., asks bids until June 15 for one drill press, special spindle for drill press, high voltage condenser, one frequency recorder, one voltage regulator and other equipment.

Board of Commissioners, Sharptown, Md., asks bids until June 19 for new pumping plant for municipal waterworks, with pumping machinery and complete accessory equipment. Clarke Gardner, Salisbury, Md., is consulting engineer.

Bureau of Yards and Docks, Navy De-

partment, Washington, asks bids until June 17 for two 250-ft. steel radio towers for Naval Radio Station, San Juan, P. R. (Specifications 8211); switchboard equipment for Charleston, S. C., Navy Yard, including electrically operated oil circuit breakers mounted in steel compartments, cables, conduits, instruments, etc. (Specifications 8222); pressure sand filters for marine barracks at Quantico, Va., including motor-driven air blower, automatic operating equipment, piping systems, etc. (Specifications 8234).

General Purchasing Officer, Panama Canal, Washington, asks bids until June 18 for galvanized steel wire rope, brass pipe, cast iron water pipe fittings, 12 warehouse barrel trucks, 500 10-gal. steel paint drums, rubber-metal gasoline hose and other equipment (Schedule 3153).

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 16 for one motor-driven gap lathe for Iona Island Navy Yard (Schedule 8104), one motor-driven balancing, static and dynamic machine for Norfolk, Va., yard (Schedule 8085); until June 19, spare parts for airplanes for Quantico Naval Station (Schedule 900-9658), one motor-driven engine lathe (Schedule 8096), one water turbine-driven gasoline centrifugal pump and spare parts, and one filter, 70-gal. per min. (Schedule 8092) for Eastern yards; until June 23, seven sand-blast cabinets for Eastern yards and three similar cabinets for Western yards (Schedule 8118).

◀ SOUTHWEST ▶

James R. Kearney Corp., 4236 Clayton Avenue, St. Louis, manufacturer of electric line hardware, line fittings, etc., has plans for two-story addition, with first floor primarily for assembling operations. Cost about \$125,000 with machinery.

E. J. Dietrich, 438 East Gregory Boulevard, Kansas City, Mo., has plans for new one-story machine shop, 50 x 65 ft. R. H. Sannaman, 615 East Ninth Street, is architect.

Wagner Electric Corp., 6400 Plymouth Avenue, St. Louis, has let general contract to Hercules Construction Co., 7807 Forsythe Street, for two-story plant unit, 120 x 500 ft. Cost over \$200,000 with equipment. Condon & Post, 53 West Jackson Boulevard, Chicago, are engineers.

Atlas Brew Sales Co., 1908 Walnut Street, Kansas City, Mo., A. P. Spaar, secretary, has plans for new one-story storage and distributing plant, 120 x 125 ft. Cost over \$60,000 with equipment. A. B. Anderson, 621 Arlington Street, Independence, Mo., is architect.

Common Council, Claremore, Okla., plans extensions and improvements in municipal electric power plant, including installation of new Diesel engine unit and accessory equipment. Cost close to \$65,000.

United States Engineer Office, Tucumcari, N. M., asks bids until June 15 for 7000 ft., galvanized steel or iron woven wire cloth (Circular 296).

Purchasing and Contracting Officer, Normoyle Quartermaster Depot, San Antonio, Tex., asks bids until June 15 for one set rotary hole saws, one high-pressure portable chemical spray cleaning machine, electric-operated, one portable electric-operated belt-type sander, one battery charger, two axle straightening gages, one stationary high-pressure lubricator, barrel pump type; steam boiler, one overhead swivel for high-pressure lubricator and other equipment (Circular 11).

United States Engineer Office, Trust Company Building, Galveston, Tex., asks bids until June 26 for one propelling Diesel engine and two combination Diesel-driven auxiliary units (Circular 281).

◀ SOUTH CENTRAL ▶

Director of Purchases, Tennessee Valley Authority, Knoxville, Tenn., asks bids until June 16 for 74 tons common steel castings and 26 tons of medium steel castings for Guntersville Lock, Ala.; until June 17, 557,000 lb. rolled steel wall armor, 47,000 lb. anchor straps and 7000 lb. bolts for Guntersville Lock; until June 26, for construction of steel tower transmission line between Wheeler and Guntersville Dams, about 65 miles.

Armour & Co., Union Stock Yards, Chicago, plan extensions and improvements in new branch plant at Birmingham, recently acquired, including new buildings and equipment. Cost about \$250,000 with equipment.

United States Engineer Office, Vicksburg, Miss., asks bids until June 19 for one steam engine-driven marine-type electric generating set (Circular 288); until June 29 for one 8-yd. bottom-dump crawler wagon (Circular 286).

Fairfield Distillery Co., 234 East Main Street, Louisville, has plans for new works on 47-acre tract at Bardstown, Ky., recently acquired. It will comprise several one and multi-story units for fermenting department, still house, mechanical-bottling works, storage and distribution, with power house, pumping station, machine shop and other departments. Cost about \$160,000 with machinery. Walter C. Wagner, Breslin Building, Louisville, is architect and engineer.

Town Council, Duck Hill, Miss., asks bids until June 18 for pumping machinery and auxiliaries, 50,000-gal. elevated steel tank and tower, manhole castings and other equipment for municipal waterworks. John M. Gilfillan & Associates, Lyric Building, Birmingham, are consulting engineers.

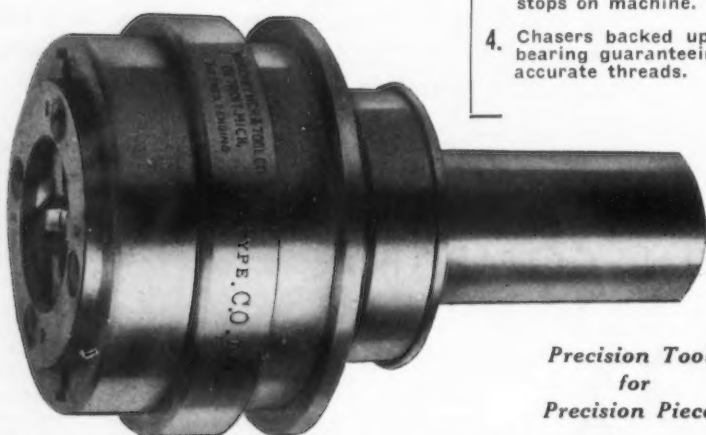
◀ MICHIGAN DISTRICT ▶

Bohn Aluminum & Brass Corp., Lafayette Building, Detroit, manufacturer of castings and other metal products, has let general contract to Krieghoff Co., 6661 French Road, for one-story addition to local No. 2 plant, primarily for storage and distribution. Cost about \$45,000 with equipment.

General Motors Corp., Detroit, has approved plans for 11-story addition to its research laboratories at Milwaukee Street and Second Boulevard, totaling about 300,000 sq. ft. additional floor space. First seven floors will be occupied by Fisher Body division for general engineering in connection with automobile body design and development, and for tool design; remaining floors will be used for engineering work for other departments. Cost about \$1,000,000 with equipment. C. F. Kettering is vice-president in charge of research.

ROTATING SPINDLES BECOME GOOD THREADERS WITH MURCHEY "C-O"

Because—



1. In this die head all parts are hardened and ground.
2. Chasers are removable without removing the cap.
3. Die head fully automatic operating with a yoke between stops on machine.
4. Chasers backed up with solid bearing guaranteeing straight, accurate threads.

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Collapsible Taps, Self Opening Die Heads; Bolt Threading, Pipe Threading, and Pipe Cutting Off Machinery.



FOR CUTTING - HOT OR COLD

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Tube Mills Protect
Equipment
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LUBRICANTS*

The main shaft of the machine above operates at high speed and the bearings must be fitted to very close tolerances. Use of the right Gulf lubricant keeps the bearings in proper alignment and prolongs the life of the saw. The machine at the right, above, is used for cutting off, chamfering and threading 24" seamless tubing—the largest in the world.

PROPER LUBRICATION Helps Keep Machine Tool Costs At A Minimum . . .

MAINTENANCE costs for machines like those shown above may run to high levels if vital parts are not protected with the proper lubricants.

To steel mills and metal working plants of all types, Gulf offers the services of trained lubrication engineers who are prepared to recommend

the proper application of oils or greases which minimize wear, preserve close tolerances, and keep bearings in proper alignment.

This expert service is available to your plant. Ask a Gulf representative what can be done—from a lubrication standpoint—to increase the efficiency of your equipment.

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GENERAL OFFICES, GULF BLDG., PITTSBURGH, PA.



Would you like to have information regarding lubricants for any particular equipment in your plant? The coupon is for your convenience.

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GULF REFINING COMPANY · 3800 Gulf Bldg., Pittsburgh, Pa.

Please give me information regarding lubricants for the following equipment.....

Name.....

Company.....

Address.....

American Blower Co., Tireman Avenue, Dearborn, Mich., manufacturer of mechanical draft equipment, parts, etc., has let general contract to O. W. Burke Co., Fisher Building, Detroit, for two-story addition, primarily for storage and distribution. Cost about \$55,000 with equipment. Albert Kahn, Inc., New Center Building, Detroit, is architect and engineer.

Pfeiffer Brewing Co., 3700 Beaufait Avenue, Detroit, plans one-story addition for storage and distribution. Cost close to \$40,000 with equipment.

◀ SOUTH ATLANTIC ▶

St. Joe Paper Co., Port St. Joe, Fla., care of Edward Ball, Barnett Building,

Jacksonville, Fla., recently organized, has acquired property at Port St. Joe for new mill for production of kraft liner board and kraft paper products. Plant will comprise one and multi-story units, with power house, pumping plant and other mechanical departments. Work is scheduled to begin late in July and mill will be completed in spring of 1937. Company has also acquired tract of timber properties in Gulf, Franklin, Calhoun and other counties for pulpwood supply. Entire project will cost about \$6,000,000. Mead Corp., Chillicothe, Ohio, paper manufacturer, is interested in new company and will operate plant on completion. George H. Mead, president of last noted company, will be chairman on board of St. Joe company. George F. Hardy, 305 Broadway, New York, is engineer. Edward Ball,

noted, is vice-president of Almour's Securities, Inc., which will be active in arranging financing for project.

Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until June 16 for one drill press (Schedule 8095), one metal-cutting saw (Schedule 8098), one punch press (Schedule 8087), one heavy-duty arch press, all motor driven (Schedule 8101), for Charleston, S. C., navy yard.

◀ MIDDLE WEST ▶

Chicago Screw Co., 1026 South Homan Avenue, Chicago, has closed bids on general contract for one-story addition, 43 x 62 ft., and improvements in present plant. Cost about \$50,000 with equipment. Jean B. Fischer, 7322 Lafayette Street, is architect. Company is affiliated with Standard Screw Co., same address.

Western Sugar Refining Co., 2 Pine Street, San Francisco, has let general contract to Barrett & Hilp, 918 Harrison Street, for new factory branch, storage and distributing plant at Cairo, Ill. Cost about \$250,000 with equipment.

City Council, Villisca, Iowa, asks bids until June 24 for new municipal electric power plant, including two Diesel engine-generator units and auxiliary equipment, water-cooling system, fuel oil storage tanks, switchboard and accessory equipment; also for electrical distributing system. Cost about \$150,000. Ralph E. Sawyer, Flynn Building, Des Moines, Iowa, is engineer; Burns & McDonnell Engineering Co., 107 West Linwood Boulevard, is consulting engineer.

John Morrell & Co., Ottumwa, Iowa, meat packers, will soon take bids on general contract for two additions, four stories and basement, 50 x 130 ft., and two stories and basement, 60 x 60 ft., also improvements in present units. Cost over \$125,000 with equipment. H. Peter Henschien, 59 East Van Buren Street, Chicago, is engineer.

United States Engineer Office, Commerce Building, St. Paul, Minn., asks bids until June 24 for dredging pump engine units and electric generating sets.

Village Council, Kellogg, Minn., asks bids until June 25 for pumping machinery and auxiliary equipment for municipal water system. Druar & Milinowski, Globe Building, St. Paul, Minn., are consulting engineers.

Quartermaster Depot, 1819 West Pershing Road, Chicago, asks bids until June 20 for 145,631 helical steel cot springs (Circular 318).

City Council, Alta, Iowa, plans extensions and improvements in municipal electric power limit, including new Diesel engine-generator unit and accessories. Cost about \$75,000. Buell & Winter Engineering Co., Insurance Exchange Building, Sioux City, Iowa, is consulting engineer.

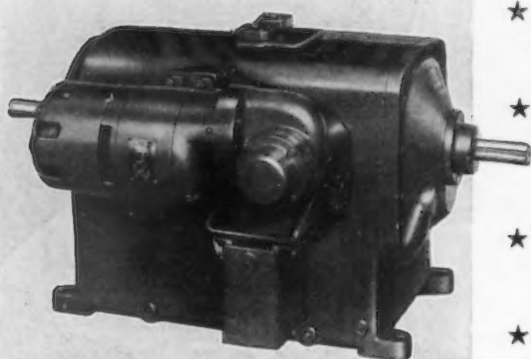
Allis-Chalmers Mfg. Co., Milwaukee, will start work about Aug. 1 on expansion of heavy duty tractor works at Springfield, Ill., to cost about \$1,000,000. Payroll will be increased from 600 to between 900 and 1000. William E. Yunkers is general manager at Springfield.

Twin Disc Clutch Co., 1400 Racine Street, Racine, Wis., has placed contracts for factory extension, 30 x 100 ft., to cost \$20,000 with equipment. Frank J. Hoffman, local architect, is in charge.

Belle City Appliance Co., Racine, Wis., manufacturer of farm tools and appliances, has leased former Badger Basket & Veneer Co. plant in Burlington, Wis., for enlargement of production of several lines of goods.

Beloit Iron Works, 815 Second Street, Beloit, Wis., manufacturer of paper and pulp mill machinery, has placed general contract with Cunningham Brothers, 359 East Grand Avenue, for shop extension, 75 x 200 ft., one-story, to cost \$50,000 with equipment.

International Printing Ink Corp., 2211 North Elston Avenue, Chicago, has plans by John J. Brackett, chief engineer, for new plant, 30 x 130 ft., two stories and basement, to replace building recently destroyed by fire at 431 North Milwaukee Street, Milwaukee.



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- ★ Smooth Acceleration and Deceleration
- ★ Accurate Stepless Speed Control . . . Minimum to Maximum in either direction
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FROM industry after industry it comes glowing praise of the New Oilgear *Fluid Power* Variable Speed Transmission. New simplicity, new adaptability, new compact design, new low prices, all combine to make Oilgear the most widely discussed development in the transmission field. Be sure you have full information. Write for Oilgear Bulletin 60000 today. THE OILGEAR COMPANY, 1311 W. Bruce St., Milwaukee, Wis.



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AIRCRAFT construction demands the very utmost in steel dependability. . . . Forgings get the most meticulous inspection. Seams or blemishes too small to be detected by the naked eye are enough to cause rejection.

Chrome-Molybdenum (SAE 4130x) steel forgings have repeatedly proved themselves able to pass the most rigid tests with a minimum of rejects. They reduce machining costs as well.

This characteristic is true of all Molybdenum steels used for forgings. . . . Reject percentages, material

costs and labor costs—all are lower, while the quality of the forgings is uniformly high.

Whether or not your forging requirements call for close inspection, it will pay you to investigate Moly steels. Write for our helpful technical book, "Molybdenum." On request, we will also gladly put you on the mailing list of our news-sheet, "The Moly Matrix." And if you are interested further—in some particular ferrous problem, for instance—our experimental laboratory facilities are at your disposal. Climax Molybdenum Company, 500 Fifth Ave., N. Y.

MOLY CLIMAX **Mo-lyb-den-um** CREATES **SALES**
CUTS COSTS

The "Deblanchal," a New Rotary Melting Furnace

(CONCLUDED FROM PAGE 53)

one. The initial charge is made to obtain a soft or extra soft steel and the working and refining are conducted with this aim. When the soft base steel is brought to temperature, it is deoxidized in the same manner as an open-hearth melt by the following steps:

(1) By changing the slag, replacing the original iron oxide saturated slag with a new acid slag.

(2) By the addition of the desired manganese.

(3) By stopping of the refining process through the addition of aluminum.

The special elements are then added in the form of ferrous chrome, silicon, or nickel as desired. The furnace operation continues until the charge again becomes a homogenous mixture, and, subsequently, the metal is poured.

It is also possible to replace the slag a second time and thus permit pouring in small quantities. The slag provides protection for the metal during the time of the pour.

Only two hours are required from the lighting of a 12-ton charge until it is melted, poured, slag emptied, and a new charge placed.

The distinct advantages obtained from the operation of the Deblanchal process are secured with equal flexibility and facility from both large and small capacity furnaces.

Summary of Deblanchal Features

(1) Low operating cost (see Table I).

(2) The only rotating furnace permitting a view of the melting operation.

(3) Simplicity of operation.

(4) Requires no tilting for charging or discharging.

- (11) All poured metal is free from slag.
- (12) Metals of exact analysis are produced (see Table II).
- (13) Simplified charging process.
- (14) Rapid melting rate of fuel oil flame (see Table III).
- (15) Simple design allowing lining repairs to be made rapidly.

TABLE II

Analyses

Steel	Cast Iron (melting time = 60 min.) (pouring temperature = 2696 to 2732 deg. F.)		Malleable Iron (melting time = 70 min.) (pouring temperature = 2822 to 2912 deg. F.)	
	In	Out	In	Out
C	0.50	0.38	3.50	3.39
Si	0.38	0.30	2.45	2.20
Mn	1.70	0.70	0.70	0.62
S	0.04	0.05	1.2	...
P	0.055	0.06	0.09	...

TABLE III

Melting Times and Oil Consumption for a 2-Ton Deblanchal Furnace

Metal	Heat	Melting Time (minutes)	Pouring Tem- perature (deg. F.)	Oil Con- sumption (gallons)	Continuous Operation	
					Heats	Hours
Cast iron	1st	105	2552	30	6	8
	2nd	60				
	3, 4, 5 and 6	50				
Malleable iron	1st	115	2822	35	5	8
	2nd	70				
	3, 4, and 5	65				
Ingot steel	1st	150	2912	45	4	9
	2nd	95				
	3 and 4	90				
Cast steel	1st	160	3002	50	4	5
	2nd	105				
	3 and 4	95				

Note: The oil consumption includes a charging period of less than 20 min. for each operation.

(5) Low oxidation loss due to controlled atmosphere.

(6) Wide range of products.

(7) The only rotating furnace permitting the removal of samples without stopping rotation.

(8) High temperature of pouring permits the making of thin sections.

(9) Possibility of adding alloys to the melt without stopping rotation.

(10) Adaptability for duplexing.

(16) Simple and accurate fuel control at all times, providing positive results in the poured metal.

(17) Adaptability with reference to capacity (1000 to 40,000 lb. sizes).

The Deblanchal rotary melting furnace is being marketed in the United States, Canada, Mexico, and South America by the Amsler-Morton Co., Pittsburgh, Pa..

Republic Leases Indianola Mine

THE Inland Collieries Co. has leased the Indianola Mine, Indianola, Pa., to the Republic Steel Corp. The Indianola Mine is located in Allegheny County, in what is known as the Thick Freeport seam.

The mine was originally opened in 1918 by the Inland Collieries Co., a subsidiary of Inland Steel Co., and steady operation was maintained at this property until 1931, when the company was forced to slacken operations due to the depression. For the past two years the mine has been on a limited production basis.

The Republic corporation has always been a large producer of coal in the Thick Freeport field through its operation of its Russelton Mine, Russelton, Pa., and the additional tonnage which will be produced at the Indianola Mine in the future will make the Republic Steel Corp. one of the largest producers in that field.